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Capital/refurbishment/construction projects across the United Nations system organizations

Note by the Secretary-General

The Secretary-General has the honour to transmit to the members of the General Assembly the report of the Joint Inspection Unit entitled "Capital/refurbishment/construction projects across the United Nations system organizations".

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JIU/REP/2014/3

CAPITAL/REFURBISHMENT/CONSTRUCTION PROJECTS ACROSS THE UNITED NATIONS SYSTEM ORGANIZATIONS

Prepared by

Jean Wesley Cazeau
Jorge Flores Callejas

Joint Inspection Unit
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Executive Summary

Capital/refurbishment/construction projects across the United Nations system organizations
JIU/REP/2014/3

This review presents key lessons learned from capital/refurbishment/construction projects across the United Nations system organizations, with the objective of disseminating best practices and providing recommendations that will enhance efficiency, effectiveness, control and accountability in project management as well as system-wide coordination and cooperation.

Main findings and conclusions

The Inspectors found that, to date, only a few organizations had started taking into account their overall global needs for construction and refurbishment of buildings and their systems so that they may plan and prioritize projects accordingly. The projects reviewed had been planned individually and not as a part a global strategy.

External and internal auditing of capital/refurbishment/construction projects, and the identification of their weaknesses with the assistance of subject-matter experts, are key factors contributing to the projects' advancement and success. The Inspectors found that most of the weaknesses in the projects reviewed had already been brought up in audit reports, such as scope creep, unrealistic budget estimates, exclusion of associated or indirect costs, amended contractual clauses at the expense of the United Nations organizations, and lack of risk mitigation measures. Therefore, organizations need to implement those audit recommendations without delay.

The Inspectors observed that all the United Nations system organizations had integrated environmental considerations and features into their refurbishment/ construction projects in order to improve energy efficiency and obtain environmental benefits. However, the present review reveals that there is a lack of coherence in applying environmental policies across the system.

The Inspectors recommend that the United Nations system organizations establish a coordination body to disseminate best practices and lessons learned regarding refurbishment/construction. The review concluded that, as a first step in this direction, the secretariats of the organizations should recognize and adequately support the existing inter-agency network of facilities managers.

The Inspectors do understand that every capital/refurbishment/construction project is different and faces unique challenges. However, they are of the view that the following lessons learned for each project phase could apply to all projects, irrespective of their location, scale and type:

Pre-planning

1. Feasibility studies should be adequately funded, so that the executive heads of the United Nations system organizations submit for approval to their respective legislative/governing body well-analysed and detailed projects.

2. Appropriate risk management methodologies should be included as early as possible.

3. A sound project governance framework should be introduced, establishing a governance structure with clear lines of responsibility, including a strong and experienced project management team.

4. The in-house pre-project team in charge of the pre-planning tasks should prepare the transition to the future project management team.

5. Preliminary budget estimates should be calculated by professionals knowledgeable about local markets.

6. Associated or indirect costs should be calculated and included in the project budget from its inception.

Planning

7. A project charter or manual that includes all aspects and operational procedures of the project is essential when undertaking a project.

8. The project is managed using a professional project management tool, in a systematic manner.

9. A detailed risk plan should be developed that includes the identification and assessment of risks and the planning of strategies to minimize or avoid the risks.

10. The project management team should have adequate professional expertise.

11. Continuity of the same project management team throughout the different phases of the projects should be preserved.

12. An independent technical advisor is required for all major projects.

13. All issues that affect quality should be carefully reviewed and assessed during the design stage.

14. Legal services should provide guidance documents explaining which type of contract is recommended and which standards should apply, according to the geographical location of a project.

15. Legal services should make sure that all refurbishment/construction contracts contain, and do not amend or omit, all the necessary contractual clauses and construction bonds that aim at protecting the organizations.

16. Each organization across the system should develop a thorough procurement policy specific to the demands of major construction projects, and provide dedicated contracts committees with the adequate staff to implement that policy, for the entire duration of the project.

Executing and completing

17. Projects should not proceed without a prior agreement on how change orders should be handled.

18. The project managers should engage with the facilities management services at an early stage and should seek agreement on all appropriate milestones and actions for the development of maintenance requirements and project handover processes.

19. Reports on lessons learned through the implementation of capital/refurbishment/construction projects in each organization should be shared with all the United Nations system organizations so as to ensure knowledge-sharing across the system.

Recommendations

The present report includes four recommendations: two are addressed to the executive heads, one is addressed to the Secretary-General of the United Nations in his capacity as Chair of the United Nations System Chief Executives Board for Coordination (CEB) and one is addressed to the legislative/governing bodies of the United Nations system organizations.

The recommendation addressed to the Secretary-General of the United Nations in his capacity as Chair of CEB recommends that he request the Chair of the CEB-HLCM to establish a working group on facilities management that emphasizes issues related to capital/refurbishment/construction projects.

The recommendation addressed to the legislative/governing bodies of the United Nations system organizations concerned is:

Recommendation 2

Taking into account the high cost and high risk of capital/refurbishment/construction projects, the legislative/governing bodies of the United Nations system organizations should exercise their monitoring and oversight role with regard to their respective projects on an ongoing basis, including during the pre-planning, planning, executing and completing phases, ensuring cost efficiency and the achievement of the overall goals of the projects.

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Abbreviations

BOA	United Nations Board of Auditors
CEB	United Nations System Chief Executives Board for Coordination
CERN	European Organization for Nuclear Research
CMP	Capital Master Plan
DOCO	United Nations Development Operations Coordination Office
ECA	Economic Commission for Africa
ECAS	Enhancing the Capabilities of Safeguards Analytical Services
EMG	Environment Management Group
FAO	Food and Agriculture Organization of the United Nations
FIDIC	International Federation of Consulting Engineers
GMP	guaranteed maximum price
HLCM	High-Level Committee on Management
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ILO	International Labour Organization
IMG	Issue Management Group
IMO	International Maritime Organization
INFM	Inter-agency Network of Facilities Managers
IPSAS	International Public Sector Accounting Standards
ITU	International Telecommunication Union
ITC	International Trade Centre
JIU	Joint Inspection Unit of the United Nations System
LEED	Leadership in Energy and Environmental Design
MINERGIE	sustainability standard for buildings used in Switzerland, France, Italy
MOSS	minimum operating security standards
NOF	New Office Facilities
OAH	offices away from Headquarters
OCSS	Office of Central Support Services
OIOS	Office of Internal Oversight Services
OLA	Office of Legal Affairs
PRINCE2	PRojects IN Controlled Environments, version 2
SBCI	UNEP Sustainable Buildings and Climate Initiative

SHP	Strategic Heritage Plan
SUN	Sustainable United Nations
TTCP	Task Team on Common Premises
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCP	United Nations Common Premises
UNCTAD	United Nations Conference on Trade and Development
UNDG	United Nations Development Group
UNDP	United Nations Development Programme
UNDSS	United Nations Department of Safety and Security
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
UNOG	United Nations Office at Geneva
UNON	United Nations Office at Nairobi
UNOPS	United Nations Office for Project Services
UNOV	United Nations Office at Vienna
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNWTO	United Nations World Tourism Organization
UPU	Universal Postal Union
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization

I. Introduction

1. As part of its programme of work for 2013, the Joint Inspection Unit (JIU) conducted a review of key lessons learned from the management of capital/refurbishment/construction projects across the United Nations system organizations. This topic stems from a suggestion made by the United Nations Board of Auditors (BOA).

2. The first major construction project in the history of the United Nations system was the building of its landmark Headquarters in New York, decided in 1947, two years after the foundation of the Organization, and completed in 1952. Fifty-seven Member States of the United Nations engaged enthusiastically and invested generously in the construction of an emblematic complex that would match the importance of the Organization's mission and would enshrine its principles and values. The international team of 11 distinguished architects selected for the project designed the then very modern core complex of the headquarters, which was intended to accommodate up to 70 Member States. The lasting performance of the buildings shows that the initial investment was returned. The complex has exceeded, by decades, its operating systems' and installations' life expectancy, and its structure has stood up to 50 years of overuse, accommodating the needs of almost three times the number of Member States that it was initially intended for.[1]

3. Over the years, with the expansion of the United Nations family, more organizations have embarked on projects to improve their existing facilities or to build new ones. Those projects came in response to needs arising from the ageing and the related deterioration of their premises, and/or from the increasing number of their staff. In principle, refurbishment projects aim at improving the performance of the buildings, as well as at increasing their financial value, by making them more sustainable, energy-efficient and cost-efficient, among other ameliorations. In many cases, refurbishments have contributed substantially to the preservation of important cultural and historical heritage. The most prominent example of this is the Palais des Nations at Geneva, which is over 80 years old and was transferred to the Organization by the League of Nations.

4. The United Nations system organizations care for the welfare of their staff, as well as for the welfare of the delegates of Member States and civil society and the members of the public using or visiting their facilities. Research has shown that the quality of indoor environments can affect the health, safety and productivity of the people who occupy them.[2] In this regard, the organizations acknowledge their responsibility to provide a healthy, safe[3] and hazard-free, environmentally sound

[1] There were 191 Member States when the United Nations decided to renovate Headquarters by launching the Capital Master Plan (see http://www.un.org/en/members/growth.shtml).

[2] National Research Council of the National Academies, *Achieving High-Performance Federal Facilities* (Washington, D.C., National Academies Press, 2011). Available from http://www.nap.edu/catalog.php?record_id=13140.

[3] Occupational safety and health lie at the heart of various international conventions and recommendations. ILO has adopted more than 40 standards specifically dealing with occupational safety and health, as well as over 40 codes of practice. See http://www.ilo.org/global/%20standards/subjects-covered-by-international-labour-standards/occupational-safety-and-health/lang--en/index.htm.

working place, that is fully accessible to all, including persons with disabilities,[4] and complies with current standards and international instruments.

5. Irrespective of the complexity of the projects or the diversity and volatility of the context in which they are carried out, their owner organizations have to lead by example in the construction field too. The facilities of the organizations must be designed, or upgraded, to be climate-neutral and environmentally friendly. Moreover, all refurbishment/reconstruction projects should incorporate features based on new technologies with a broad application and long life expectancy. While the headquarters of the United Nations system organizations enjoy extraterritoriality status, their projects must conform to local laws and codes, respect United Nations conventions, international instruments and standards and meet internal safety and security and stakeholders' needs.

A. Objectives, criteria and scope

6. The objectives of the present review are (a) to examine current practices, procedures and modalities in selected major projects for the refurbishment or construction of administrative buildings, mainly headquarters, owned by United Nations system organizations around the world; and (b) to assess current differences and shortcomings and to identify lessons learned and best practices whose emulation across the system may enhance the efficiency and effectiveness of project processes.

7. The review focused on strategic plans and capital projects for refurbishment and construction, that is, larger-scale and higher-cost projects that entail major capital expenditure for the organizations and significant financial contributions from Member States. The projects studied related to administrative buildings, namely offices and auxiliary facilities, which were screened on the basis of their budget and the length of their planning period. The Inspectors set, as a threshold for defining a project as "major", the amount of US$ 15 million, and decided that they would focus on projects equalling or exceeding that cost that had been planned within the last 15 years. However, most of the recommendations of the present report are intended to be implemented by all organizations concerned, in connection with their ongoing or future refurbishment/construction projects, irrespective of scale and type.

8. The scope of the review covers 16 out of the 28 United Nations system organizations that adhere to the JIU statute and own premises.[5] Using the aforementioned criteria for screening major projects, 15 specific projects (implemented by 11 out of the 16 organizations covered) were identified as being the most relevant to the present review (see annex I). These 15 projects concerned different regions: Africa, the Americas, Asia and Europe. Almost half of the major projects identified were

[4] Accessibility is one of the eight fundamental issues and guiding principles that underlie the Convention on the Rights of Persons with Disabilities and its articles. Article 9 of the Convention requires countries to identify and eliminate obstacles and barriers and to ensure that persons with disabilities can access their environment and public facilities and services. See http://www.un.org/esa/socdev/enable/disacc.htm and http://www.un.org/disabilities/default.asp?id=269.

[5] Twelve organizations that adhere to the JIU statute are not covered by the scope of this review, either because they are housed by host countries (ITC, FAO, ICAO, IMO and UNWTO), lease their premises (UNFPA, UNICEF and UN-Women), or are housed in premises of the United Nations Secretariat (UNCTAD at UNOG; UNEP and UN-Habitat at UNON; and UNODC at UNOV).

carried out in Europe; this includes the projects completed in Paris by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and in Seibersdorf, near Vienna, by the International Atomic Energy Agency (IAEA). The review also takes in joint efforts on two other continents: it includes the Green One United Nations House, in Hanoi, planned in the context of the pilot initiative Delivering-as-One Office in Viet Nam; and the United Nations regional hub for Latin America and the Caribbean, in Panama City. The Capital Master Plan (CMP) of the United Nations Headquarters complex was not reviewed, as it has been extensively covered by BOA and the Office of Internal Oversight Services (OIOS). Notwithstanding, the present review, where appropriate, incorporates some lessons learned that were derived from that project.

9. At the time of the review, 5 out of the 14 projects reviewed were fully or partially completed, while the remaining 10 were ongoing. The United Nations Secretariat heads the list of the selected projects, given its parallel major undertakings since 2000 in Addis Ababa, Geneva, Nairobi and New York. The project in New York represents the highest budget allocated for refurbishment and construction within the system. One third of the selected projects are located in Geneva, as the city hosts many international organizations' headquarters in buildings of historical and architectural value, such as the projects of the World Intellectual Property Organization (WIPO), World Health Organization (WHO)/Joint United Nations Programme on HIV/AIDS (UNAIDS), International Labour Organization (ILO) and World Trade Organization (WTO).

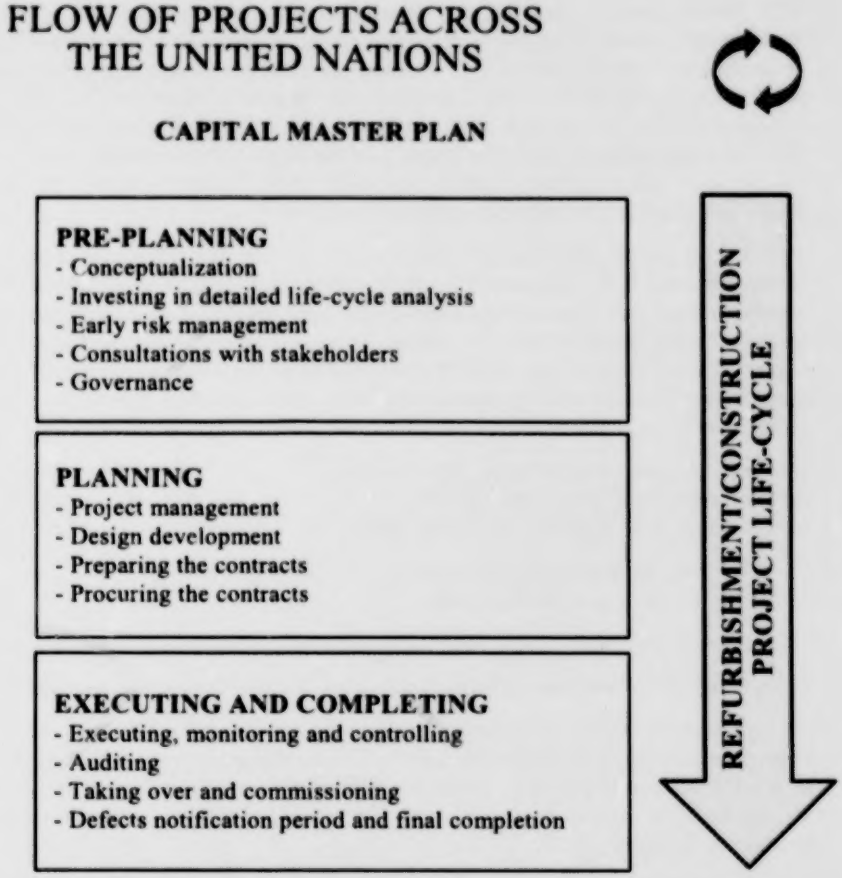
B. Definitions

10. The present review considers as a construction/refurbishment project any activity undertaken by an organization to create, expand or alter a space due to programme growth or advances in technology, or to replace a space, structure or system that has reached the end of its useful life-cycle. The term refurbishment, as used throughout the present review, covers all activities related to renovation, restoration, rehabilitation, conservation, alteration, refitting, retrofitting, recovery, demolition, deconstruction, removal/abatement of hazardous materials (e.g. asbestos), or any other similar work aimed at improving existing buildings and upgrading to up-to-date standards.

11. Capital master plan commonly refers to a visionary long-term plan of an organization for future adjustments or expansions of its facilities through the implementation of refurbishment/construction projects.

12. All capital/refurbishment/construction projects have a life-cycle. The common life-cycle of projects carried out by United Nations system organizations for the delivery of operational facilities consists of four successive phases: pre-planning, planning, executing/implementing, and completing, as described in chart 1 below:

Chart 1. Capital/refurbishment/construction project's conception and flow



13. Pre-planning is the phase of preparation of a project and documentation of the relevant submission to the legislative/governing bodies of the organizations for approval.

14. The planning phase starts once a project is approved and authorized to commence. During this project phase, the organizations take decisions about governance, project management, design development (refining the scope of the project and revising the budget) and contracts (preparation and procurement).

15. Project execution or implementation is the phase in which the project plan is put into action. Typically, this is the longest phase of the project management life-cycle, where most resources are applied.

16. The last phase of a project is its completion. Completing a project entails commissioning "a quality-oriented process for achieving, verifying and documenting that the performance of facilities, systems and assemblies meets defined objectives and criteria".[6]

[6] Whole Building Design Guide, "Building commissioning", 11 June 2012. Available from http://www.wbdg.org/project/buildingcomm.php.

C. Methodology

17. The methodology followed in preparing the present report included a preliminary desk review, an inception paper, a questionnaire addressed to the JIU participating organizations, a global mapping of existing projects, case studies, interviews and in-depth analysis. Interviews were conducted with 70 officials from the JIU participating organizations, as well as with staff representatives, in Addis Ababa, Geneva, Nairobi, New York and Panama City. The Inspectors met host country officials in Geneva and Panama City. They also held consultations with WTO, which is officially not a part of the United Nations system but is represented at CEB.[7]

18. Out of the 14 major projects fulfilling the criteria described in paragraph 7, the review selected three projects (UNESCO, WIPO and IAEA) as case studies.[8] The lessons learned that were obtained from those case studies were further compared to lessons learned gathered by other stakeholders, including external and internal audit bodies. On the basis of the research and findings of the external consultant who was hired to conduct those case studies, the Inspectors identified a number of success factors and 19 best practices.

19. The Inspectors examined the phasing of major refurbishment/construction projects across the system and the ways in which the JIU participating organizations handled them at each project phase throughout their life-cycle, seeking to find out:

- The way in which organizations conceptualize, plan, design and manage their projects and the associated risks
- How they prepare, procure and administer contracts for their implementation
- Whether and how they safeguard and share lessons learned and best practices

20. Comments from the JIU participating organizations on the draft report have been taken into account in finalizing the report. In accordance with article 11, paragraph 2, of the JIU statute, the present report has been finalized after consultation among the Inspectors so as to test its conclusions and recommendations against the collective wisdom of the Unit.

21. To facilitate the handling of the present report, and the implementation of its recommendations and the monitoring thereof, annex II contains a table indicating whether the report is submitted to the organizations concerned for action or for information. The table identifies four recommendations, one of which should be acted upon by the United Nations Secretary-General in his capacity as Chair of CEB.

22. The Inspectors wish to express their appreciation to all those who assisted them in the preparation of this review, and particularly to those who participated in the interviews and so willingly shared their knowledge and expertise.

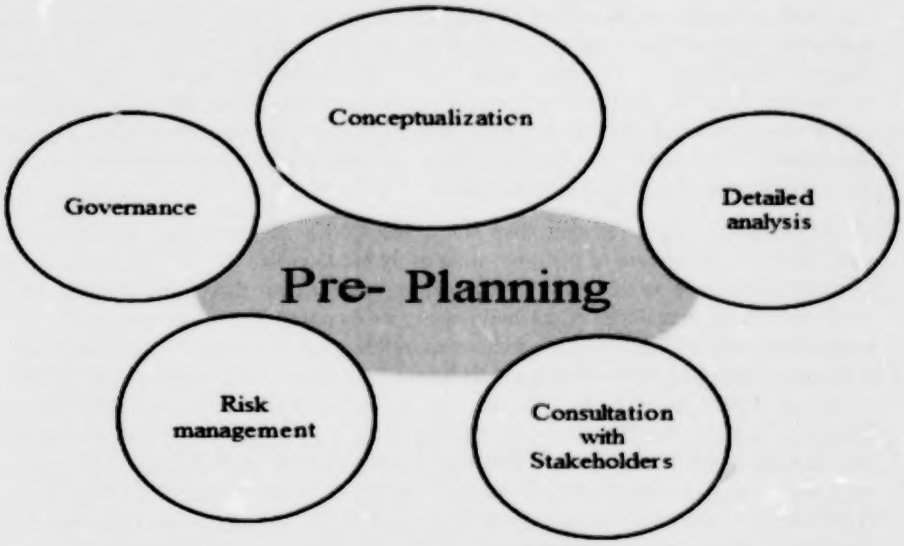
[7] World Trade Organization, "The WTO and the United Nations". Available from http://www.wto.org/english/thewto_e/coher_e/wto_un_e.htm.

[8] See the milestones of the three case studies, in annex II.

II. Pre-planning of refurbishment/construction projects

23. The success of refurbishment/construction projects depends greatly on the quality of the preparations made during their pre-planning phase. At this project phase, the United Nations system organizations should diligently implement the following key elements: careful conceptualization, detailed analysis for the entire life-cycle, early risk management, consultations with stakeholders, and sound governance.

Chart 2. Elements of effective and efficient pre-planning



A. Capital master plans

24. The conceptualization of a refurbishment/construction project may start before its pre-planning, as part of a capital master plan of an organization that has already forecasted its long-term needs and put together an action plan responding to them. The establishment of capital master plans is increasingly becoming a standard good practice within and outside the United Nations system.

25. In view of the investment of resources required to improve the condition of the buildings and to upgrade their performance, adding book value to their real estate, as it would be captured in financial reporting using International Public Sector Accounting Standards (IPSAS),[9] organizations should prioritize which project among their refurbishment/construction projects should be pre-planned first. The decision on the launching of a refurbishment/construction project should be considered primarily from a strategic point of view, taking into account the overall refurbishment/construction needs of the organizations' buildings and their systems.

[9] See JIU/REP/2010/6, paras. 54-59, on the basic principle of IPSAS 17 (on property, plant and equipment).

26. Although none of the 14 refurbishments/construction initiatives reviewed originated from a capital master plan,[10] future initiatives are now entailing capital master plans. In the view of the Inspectors, many problems faced by the United Nations Secretariat in carrying out three major projects in three different locations might have been mitigated by an organization-wide global capital master plan. This view is supported by the General Assembly, which instructed the Secretariat to prioritize properly and not to implement major projects simultaneously.[11] This led the United Nations to prepare two different 20-year plans. The first plan is the feasibility study on the United Nations Headquarters accommodation needs for the period 2014-2034, which was submitted to the General Assembly in September 2011.[12] The second plan is the strategic capital review of the global premises of the United Nations, which produced a report based on an overview of the real estate portfolio of the United Nations Secretariat, in February 2014.[13] The Secretariat had launched this review considering that its methodology would allow accurate forecasting[14] — based on consistent and valid data collection, including in-depth inspection and physical assessment of the condition of the buildings and their technical infrastructure — and the identification of future operational plans.

27. According to the relevant case study, the UNESCO secretariat, following the completion of 38 per cent of the renovation of its headquarters in 2009, presented to its General Conference in 2011 an 11-year capital master plan that aims at the gradual restoration of the remainder of the buildings in its complex in two phases, covering its requirements until 2022.[15] WHO, which owns buildings in 15 of the 188 locations where it operates, including its headquarters and five of its regional offices, introduced in 2010 a 10-year capital master plan, covering its global needs for the period 2010-2019.[16] During the review, WIPO drew up, for the first time, a six-year detailed and sustainable capital master plan covering three bienniums, from 2014 to 2019, including its capital expenditure needs for buildings with assigned priorities as well as resource estimates for both one-time investment costs and recurring ones.[17] At ILO, the Governing Body had proposed in 2010 that the organization prepare a comprehensive plan for the renovation of the ILO building, including financial and technical aspects, risk management and time frames, which would lead to a capital master plan, but so far this proposal has not been implemented.

28. Capital master plans are instrumental for strategic planning, irrespective of the number of projects that they comprise. From the aspect of investment of resources required for their preparation, they tend to be considered as one-time exercises for each organization. However, for capital master plans to continue to be relevant, they should be regularly reviewed and updated with periodic condition assessments. **The Inspectors encourage the JIU participating organizations, as appropriate, to draw**

[10] Although the renovation of the United Nations Headquarters complex is called the Capital Master Plan, this is a specific project limited to the Organization's headquarters complex and is thus not a capital master plan in the sense of the definition in para. 11 of the present document, because it does not concentrate all of the Organization's projects, that is to say, it does not cover projects relating to the Organization's overseas facilities and their needs.

[11] A/RES/66/247, section VII, para. 6.

[12] A/66/349, pursuant to A/RES/60/282; A/66/7/Add.3 and A/67/720.

[13] A/68/733.

[14] A/65/518, paras. 11-14.

[15] UNESCO 187/EX/31 Annex 36 C/50.

[16] WHO A63/36.

[17] WO/PBC/21/18.

up capital master plans which will allow them to assess the magnitude of their current needs as well as project future medium and long-term needs; develop a global strategy and prioritization system for capital improvements; and programme future refurbishment and construction projects in a timely manner.

B. Conceptualization

29. A first step in the pre-planning of any refurbishment/construction project is its conceptualization. This entails a review and assessment of the existing conditions, which will identify the exact space needed or the exact problems in the functioning of a facility. Assessing what in a facility's structure and systems does not function well, and why, and what its impact is on the operations of the organization, is a prerequisite for proposing ways to remedy these dysfunctions. Likewise, assessment of the number of staff and other users that would need office, conference and other ancillary space indicates the additional area required to be built. In exploring their current and future space needs, leaving aside staff growth, the organizations are encouraged by the Inspectors to consider factors that may mitigate space needs, such as the introduction of flexible workplace strategies and relevant arrangements (e.g. teleworking and hot-desking) and efficient space utilization (e.g. open space).

30. Based on the findings of the assessment review, the organization develops the objectives of a project, analyses the costs and makes a preliminary project cost estimate. This information on costs is required for the management to make decisions about whether or not to proceed with the project and develop a project initiation document for submission to its legislative/governing body. To ensure accurate cost analysis and accurate calculations, it is essential that the project be adequately scoped.

31. Past experiences with projects for construction of United Nations organizations' facilities have revealed, and confirmed, the importance of having a well-defined needs assessment to clarify the scope of the project from the pre-planning stage, as modifications can affect the complexity of design, budget and time for construction, and quality requirements. Regarding refurbishment projects, in particular, most United Nations practitioners recommend that the "worst probable case" scenario always be considered when determining the scope of the works.

32. The Inspectors found that initial concepts of projects lacked adequate scoping in a number of cases:

- In the case of the ILO headquarters renovation project, a more thorough assessment was undertaken into the project in 2013, which led to the adding of works related to asbestos removal and fire safety, and some other additional works that had not been part of the originally approved scope. The revised cost estimate resulted in a CHF 59.3 million increase, which exceeded the maximum variation by 20 per cent compared to the earlier estimates made in the 2010 plan.[18] This shows that although ILO had already invested a significant amount (CHF 1.6 million) in studies carried out by competent professionals in 2006 and 2011, none of those studies had projected the worst probable scenario for the headquarters renovation.

[18] ILO GB.319/PFA/4, paras. 18 and 19.

- The WIPO case study revealed that, although the organization did not spare any expenses on studies to identify the details of the requirements for its new building project during its initial phase, from 1998 to 2002, those studies did not lead to a proper conceptualization of its construction project. The first evaluation report of the External Auditor on the New Construction highlighted, among a number of pre-planning weaknesses, the lack of alternative proposals, of realistic prices, and of consideration of risks of price change.[19] As a result, after the project was halted and then restarted in 2006, WIPO had to invest again in the necessary expert skills and take the time to properly redefine the concept of the project, which included financing options, feasibility analyses and a revised budget.

33. The Inspectors found that, in many cases, there was an underestimation of the associated costs. Associated costs are costs that are indirectly related to the project's final output. Therefore, they should be given a costing at the outset and should be included in the initial cost estimate. The initial cost estimate should cover indirect costs such as security requirements, office furniture, and information technology equipment configuration, which do not constitute refurbishment or construction and are considered as associated costs. Contingencies should be covered as well. Moreover, depending on the project's location, estimates for inflation, price escalation reserve and currency rate fluctuation should also be part of the initial cost estimate. Furthermore, all assumptions made during development of the cost estimate should be documented.

34. The calculation of associated or indirect costs was not reflected in the original CMP budget estimate submitted, which was approved by the United Nations General Assembly on the recommendation of the Advisory Committee on Administrative and Budgetary Questions.[20] As the renovation advanced, such costs arose, because the progress of the CMP works would have been impeded if the respective expenditures had not incurred. The General Assembly approved expenditures for associated costs on an annual basis until 2011 in successive resolutions, but decided that those expenditures would be absorbed within the approved budget of the CMP unless otherwise specified by the General Assembly.[21] The General Assembly maintained its position, facilitating the continued financing from the CMP budget by augmenting the project's budget with two tranches of approved commitment authority, for 2012 and 2013,[22] which allowed activities related to the associated costs to continue until the end of 2013.

35. During the mission of the Inspectors to Nairobi and Addis Ababa, officials explained how the United Nations Office at Nairobi (UNON) and the Economic Commission for Africa (ECA) had resolved similar problems of exclusion of the associated or indirect costs from the project concepts and initial estimates for their respective New Office Facilities projects, which had been undertaken almost in parallel. The General Assembly authorized ECA to include the associated costs (internal access roads, parking, landscaping etc.) in a revised increased budget estimate of its New Office Facilities project,[23] while in the case of UNON it approved a new separate project submitted later by UNON for the works corresponding to the associated costs.

36. During their briefing with United Nations Office at Geneva (UNOG) officials on the Strategic Heritage Plan (SHP) for the renovation of the Palais des Nations, the

[19] WIPO A/37/10.
[20] A/RES/61/251, A/59/556 and A/61/595.
[21] A/RES/62/87, A/RLS/63/270, A/RES/64/228 and A/RES/65/269.
[22] A/RES/66/258 and A/RES/67/246.
[23] A/RES/56/270; A/RES/62/238; and A/68/517, para. 12.

Inspectors noted that the **important lesson learned from the CMP regarding the necessity of calculating and including associated or indirect costs in the project budget from its inception** had already been applied. Thus, the report of the United Nations Secretary-General on the implementation of the SHP had presented to the General Assembly a detailed budgetary cost analysis that also took into consideration all associated costs that were not directly linked to the refurbishment/construction works. The addition of such costs, which contributed to the more than 25 per cent overall increase over the initial SHP budget estimate given in the conceptual engineering and architectural study of 2011, reflects the actual investment required for the renovation.

37. As project cost estimates must be as realistic and accurate as possible starting from the pre-planning phase, they should be entrusted to professionals. The United Nations practitioners interviewed stressed that estimators should be aware of high-cost items such as the costs of mitigating hazardous waste and other environmental impacts; business continuity-related costs, including natural disasters and emergency preparedness; a transportation management plan and moving expenses; traffic handling and swing space leases etc.

38. More specifically, knowledge of the local market is important when making estimates, especially in locations away from headquarters. For example, the calculations of ECA for the parking lot of the New Office Facilities, which was added to the project in 2008, were unrealistic, because they underestimated the costs, which were based on much lower prices than the real local market prices. Similarly, the case study of the UNESCO project revealed that the estimates for its headquarters renovation were based on prices and construction indices that were not accurate. In some countries, national databases can be used by estimators to generate costs for materials, labour and other services. **In the Inspectors' view, for preliminary budgets to be reliable, professionals familiar with the local markets should be consulted.**

39. **The in-house pre-project team in charge of the pre-planning tasks should pave the way for the transition to the future project team**. It should prepare the terms of reference for all the consultancies required (e.g. the risk management consultancy) at this stage, as well as the job descriptions for the project management team members or firms that have to be hired in the following phase. Continuity in the composition of project management teams or task forces is important in order to preserve the knowledge on the project.

40. **A lesson learned by UNON is that continuity of the same project management team throughout the different phases of the projects should be preserved, as the institutional memory can facilitate the decision-making**. In particular, UNON found that it was a challenge for its project to have different project teams during the design sub-phase and the implementation phase. The project team that supervised the construction lacked important information because its members had not been involved in the design process.

41. **The Inspectors recommend that the executive heads of the United Nations system organizations pay special attention to the preparatory stages of their capital/refurbishment/construction projects in order to ensure a smooth transition from the pre-planning to the planning phase.**

C. Investing in detailed life-cycle analysis

42. In United Nations system organizations, legislative/governing bodies tend to base their decisions regarding the approval of a project on the results of feasibility studies. The scope of a feasibility analysis varies, and can include programme and design concepts, as well as technical investigations such as site and building condition surveys, code and life safety evaluations, historic and environmental studies, and budget estimates. Its cost breakdown may include architectural and engineering services; legal, management and administration costs; and test borings;[24] as well as consulting fees for planning and cost-estimating studies. It is estimated that the error factor for preliminary technical feasibility studies is -/+ 30 per cent, while a very complex project could have a larger margin of error;[25] therefore, the time frame and costs associated with feasibility studies could increase or decrease by a minimum of 30 per cent.

43. Given the magnitude and complexity of the CMP, the General Assembly approved, in 2000, the amount of US$ 8 million for the preparation of a comprehensive design plan accompanied by a detailed cost analysis,[26] requesting the Secretary-General to report on its outcome and to include details of measures designed to protect the organization from cost overruns and identification of all viable alternatives in the most cost-effective and efficient manner.[27] Consistent with its practice, following the findings of a conceptual engineering and architectural study exploring three options for the SHP for the renovation of the Palais des Nations, the General Assembly funded, in 2011, a more detailed study of the medium-term option, which was supported by the United Nations Secretary-General. UNOG received CHF 2.8 million to hire a firm that would provide a detailed analysis of the project costs as well as a detailed phasing plan of the project implementation. This detailed study, which included a seismic analysis, brought to light structural deficiencies in a building in the complex, resulting in the enlargement of the scope of the SHP. During their visit to Panama City, the Inspectors were informed that US$ 2 million had been invested in feasibility studies for the construction of the United Nations regional hub. These studies, which were conducted by the United Nations Office for Project Services (UNOPS), included a preliminary design and detailed engineering designs, as well as an environmental impact assessment and an archaeological study of the construction site.

44. Increasingly, the United Nations system administrative buildings are incorporating new technologies to improve environmental performance in key areas such as energy and water consumption, reduction of greenhouse emissions, use of sustainable materials, and appropriate waste management. Substantial improvements are being made with regard to harvesting daylight and rainwater and using new heating/cooling and ventilating systems. In the Inspectors' view, these elements should be included in feasibility studies.

45. The building life-cycle refers to all aspects of a building over the course of its entire life, from the design and installation phases to the completion and operation phases. When attempting to improve an operational feature of a building that is related

[24] Test borings are conducted to determine the soil's load-bearing ability to support a building or other improvement, and the size of the footings necessary; also called compaction tests. See http://financial-dictionary.thefreedictionary.com/boring+tests.

[25] See http://www.gao.gov/assets/240/231824.pdf on the United Nations Headquarters renovation, pp. 8 and 30-31.

[26] A/55/7/Add.4.

[27] A/RES/55/238, section V.

to how a building was designed, it is useful to look at how these improvements will impact the whole life of the building. For example, one has to consider the overall energy conservation. In the majority of cases, less than sufficient effort is put into designing a building to be energy-efficient and hence large inefficiencies are incurred in the operational phase.

46. Research is ongoing to explore methods of incorporating the whole life-cycle of a building, rather than just focusing on the operational phase as is the current situation. From this aspect, IAEA demonstrated good practice by reviewing the initial problem of enhancing the capabilities of safeguards analytical services (ECAS) laboratories in terms of medium and long-term sustainability.

47. **The executive heads of the United Nations system organizations, in the context of the pre-planning phase, should request the legislative/governing body of their respective organization to provide adequate funding for feasibility studies so that they are able to submit to it well-analysed and detailed projects.**

D. Early risk management

48. It is now commonly recognized that the conceptual phase is the most appropriate for conducting risk management, since decisions taken at this phase tend to have a significant impact on the final cost. It is also the phase in which the greatest degree of uncertainty about the future is encountered. In response to this type of situation, risk management can play an important role in controlling the level of risks and mitigating their effects.[28]

49. During the review, the Inspectors observed that only one out of the 14 projects reviewed, namely the Strategic Heritage Plan of UNOG, introduced the use of a risk management approach at the pre-planning phase. More specifically, OIOS worked on and completed a risk register identifying risks related to the strategy, governance and operations of the SHP, which was shared with the UNOG project team in 2013. Meanwhile, UNOG had already started preparations to comply with an earlier recommendation from OIOS contained in the report entitled "In-depth technical construction audit of CMP", concerning future capital plans, namely the suggestion that the United Nations should carry out a quantitative risk assessment, in keeping with industry practice, on large or complex projects.[29] UNOG proceeded to hire a risk management consultancy firm which will create and keep updating its own risk register throughout the life-cycle of the SHP.

50. Recent academic research has concluded that the lack of use or the underuse of risk management may be due to: complexity, or lack of understanding of the technique; length of the process; or lack of information or resources needed to implement the process.[29] **The Inspectors believe that it is in the interest of the United Nations system organizations to identify and overcome the causes that impede them from conducting risk management assessment at the pre-planning phase. They also advise the organizations to ensure that appropriate risk management**

[28] Ng, Tze Ling, "Risk management: its importance during the conceptual stage of construction projects in Australia". University of South Australia thesis (2004). Available from http://ura.unisa.edu.au/R/?func=dbin-jump-full&object_id=unisa44025.

[29] A/67/330, recommendation 2.

methodologies are included as early as possible in capital refurbishment/ construction projects.

E. Consultations with stakeholders

51. If the values of an organization as a client are not fully understood in a construction project, the result is likely to be either low fulfilment of client expectations or multiple design alterations during the project process, which lead to additional costs and frustration among the parties concerned.

52. Briefing can be regarded as a continuous, inclusive and interactive process with the involvement of all stakeholders, including end users.[30] Briefing should start at the conceptual stage to create a basis for the project decision and for a number of different processes with varying purposes before and during the design and construction activities. Briefing is not just about specifying needs as requirements but also about evaluating how well design proposals fulfil needs and aspirations. The IAEA case study demonstrates the good tactic of continuous communication that IAEA followed in the ECAS project: from the outset, IAEA has involved member States and internal end user departments in developing options that addressed the initial needs and ensured that all interested parties were in agreement with the three sub-projects[31] of the project as identified, before approval was sought.

53. Staff representatives of some organizations pointed out that errors from the conceptual stage of a project could have been avoided if the staff councils had been consulted. An illustrative example was the UNON New Office Facilities, where nobody noticed in time that the building lacked an access ramp to its first and second floors for persons with physical disabilities, while the elevators were too small to be used for this purpose. The managers of UNON commented that all floors of the building were accessible by standard-sized elevators, which can accommodate a wheelchair. However, following an evacuation exercise, they realized that a person on a stretcher could not fit into the elevators. In the Inspectors' view, the absence of access ramps represents a serious risk, especially in emergency situations when the use of elevators is restricted.

54. The common practice of the United Nations system organizations, despite the extraterritoriality status that their premises enjoy, is to voluntarily apply local building codes on safety and security, environmental standards, fire protection and energy conservation.[32] In Geneva, before starting a project, international organizations consult with the cantonal services for the protection of sites and monuments, which are in charge of classifying heritage buildings and approving rehabilitation projects.[33] In New York, the United Nations sought to ensure compliance with the United States architectural and safety standards in a number of different ways.[34]

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[30] Jensen, Per Anker ,"Inclusive briefing and user involvement: case study of a media centre in Denmark". *Architectural Engineering and Design Management*, vol. 7, No. 1 (2011), pp. 38-49. Available from http://orbit.dtu.dk/en/publications/inclusive-briefing-and-user-involvement(f73d66aa-98d5-42b0-a02a-28983433ea5b).html.

[31] Environmental Samples Clean Laboratory Extension (CLE), Nuclear Material Laboratory (NML), and Infrastructure and Security Improvements.

[32] JIU/REP/2001/1, para. 22.

[33] Etat de Genève. See http://www.ge.ch/patrimoine/sms/subventions.asp?#batiments.

[34] JIU/REP/2001/1, para. 24.

55. The United Nations Department of Safety and Security (UNDSS), which is responsible for supporting the implementation of security standards and monitoring the organizations' compliance with them across the system, should be consulted from the beginning with regard to the safety and security requirements for refurbishment/construction projects. The results of the consultations should be recorded for future reference during the project's life-cycle. Security assessments are mandatory steps in the process of establishing United Nations common premises, as it is necessary for the United Nations country teams to define major cost impacts to meet the criteria of and comply with the minimum operating security standards (MOSS)[35] and other relevant policies. UNDSS produced a report that was considered as part of the feasibility studies for the construction of the United Nations regional hub in Panama City. A lesson learned from the Green One United Nations House project in Hanoi was that multiple revisions of security requirements delayed the launching of the procurement process by eight months and increased the project budget by about US$ 1.8 million.

F. Governance

56. A project governance framework is critical for the success of every major refurbishment/construction project. In this context, governance is defined as the combination of processes and structures implemented by boards to inform, direct, manage and monitor the activities of the project towards the achievement of its objectives. As this framework describes the manner in which only this particular project will function, its structure and reporting lines may be quite different from the organization's standard programme management reporting lines. Given that the framework guides the decision-making while the project advances, it should indicate the level of authority that is required for each type of decision and change approval.

57. Most project plans presented by the United Nations system organizations depict their project governance structures in graphical charts showing accountable relationships and include the role that each person has in the project. Such charts also define the different groups/teams structuring the responsibility and accountability framework of the project (steering committee, technical team etc.) (see annex III). Agreeing on the project governance structure is a crucial step, as it brings clarity to the project team on accountabilities and can be used later when defining the management's approaches on how issues escalate and how the change control mechanism responds.[36]

58. Depending on the complexity of the refurbishment/construction project undertaken, the United Nations system organizations may form a steering committee to provide formal oversight, particularly with regard to the reporting on project progress to the legislative/governing bodies. The steering committees monitor the overall roles and responsibilities of those involved in the project. Such a committee is composed of representatives from the offices of the organization that will occupy the new space. The replies of WHO and UNAIDS to the review questionnaire demonstrated that they had used a very efficient way of supervising their joint

[35] See http://unsceb.org/content/action-security-and-safety-staffminimum-operating-security-standards-moss.

[36] See http://www2.cit.cornell.edu/computer/robohelp/cpmm/Phase2_Process_Descriptions.htm#2.2.8.

construction project: a technical committee submitted progress reports to the steering committee, which was in charge of supervising the construction.

59. At ILO, in response to a recommendation of the External Auditor,[37] a revised governance structure introducing a governance committee was implemented[38] in 2013, to provide additional oversight and ensure that all issues are dealt with promptly and in line with applicable ILO regulations, rules and procedures. This committee is scheduled to meet monthly, but the project manager informed the Inspectors that in practice it meets on a weekly basis. Furthermore, a steering committee was established to support and periodically provide advice to the governance committee and to propose solutions to issues. The steering committee has 12 members, as it is comprised of all the eight members of the governance committee as well as three representatives from the Human Resources Development and Communication departments, and one representative from the Staff Union; the Chief Internal Auditor may attend the meetings as an observer. The steering committee is scheduled to meet at least on a quarterly basis.

60. The new governance structure of the ILO project also includes a coordination committee, which comprises six members of the ILO governance committee and representatives of competent Swiss authorities. It was established in order to monitor the renovation works and ensure that they are as compatible as possible with relevant Swiss regulations while respecting the organization's status as an international organization. In Geneva, all projects have committees that include external participants too: besides the official representing the Swiss Confederation, they include a representative of the Foundation for Buildings for International Organizations (FIPOI),[39] a representative of the Canton of Geneva and a representative of the City of Geneva.

61. Both the WIPO and the WTO construction projects were governed by a construction committee, whereas IAEA, the Green One United Nations House in Hanoi and the United Nations regional hub in Panama City, which use the same project management methodology,[40] call their governance body a project board. While all the governance bodies differ in size, composition of functions represented, and level of the participating officials, they are all expected to be high-level decision-making bodies.

62. During an interview at the Gigiri complex, UNON officials explained to the Inspectors that they had established an advisory body for their completed construction project — the New Office Facilities Working Group. The officials stated that as the project had advanced, the role of the working group's participants had gradually expanded to areas of knowledge and expertise in construction that they did not possess. UNON overcame the problem with the appointment of an independent technical advisor. Nevertheless, it was learned from this experience that members of such project advisory bodies should possess basic construction knowledge, while their terms of reference, roles and responsibilities, liabilities and time commitment should be agreed upon up front.

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[37] ILC.102/FIN. "Financial report and audited consolidated financial statements for the year ended 31 December 2012 and report of the External Auditor", para. 82.

[38] IGDS No. 325 of 23 May 2013. Office directive on headquarters renovation project.

[39] See www.cooperationinternationalegeneve.ch/buildings-and-offices and www.fipoi.ch/en.

[40] Information about PRINCE2 is provided in para. 78 of the present document, and in the footnote to that paragraph.

63. During the implementation of its project, WTO found that its project co-decision mechanism, the construction committee, which had initially consisted of 20 people, was too large and difficult to be convened and to take decisions. It was then downsized to five members only, for flexibility purposes; its new composition included the Legal Advisor, the Chief of Administration, the Controller, the Project Director, and the Head of Cabinet who chaired the committee. The committee met with varying degrees of frequency, according to the needs of the project. At WIPO, the construction committee consists of five members, including the Director General and Assistant Director General; it meets on a monthly basis and is chaired by the Director General. The Internal Project Monitoring Team is a more flexible team of eight members that meets weekly, while the Construction Management Coordination Committee meets daily.

64. At IAEA, the ECAS project board, which was headed by the Deputy Director General and Head of the Department of Safeguards acted as the high-level decision entity and was accountable for all project expenditures. The project manager reported directly to the project board, while for technical guidance and lab user decisions the project manager liaised with the lab user team. The case study of the ECAS project found that setting up such a simple reporting structure between the ECAS board, the project manager and the lab user team was very efficient and effective for the decision-making process.

65. The organizations reviewed have found that the internal decision-making bodies should be flexible enough to hold frequent meetings as required to ensure periodical guidance and oversight to their project management team, thus avoiding delays in decision-making which could affect the progress of the project. A lesson recorded from the UNESCO case study was that the project lacked a genuine internal supervisory team, since its steering committee only met three times a year. Moreover, ILO, WIPO and WTO stressed the importance of including in their decision-making bodies legal officers familiar with the national construction laws.

66. The Inspectors are aware that every refurbishment/construction project is unique. However, they consider that, irrespective of their size and complexity, projects should be governed by a high-level body that is adequately supported. The Inspectors found that the governance structure proposed by the United Nations Secretariat following its recent experiences is a good one for major projects and can be adjusted accordingly (see annex III). For example, UNOG, in the SHP governance structure, adjusted the proposed governance structure to its needs (annex IV). **The Inspectors recommend that the United Nations system organizations adjust their capital/refurbishment/ construction governance structure according to their needs when pre-planning smaller projects.**

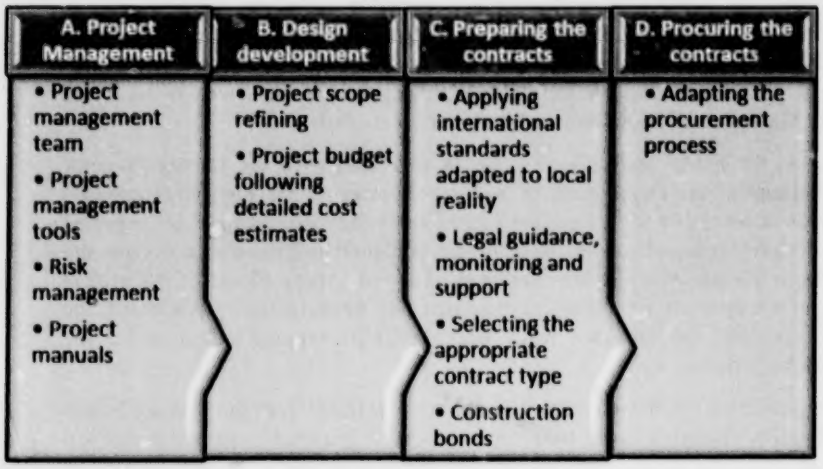
67. **The executive heads of the United Nations system organizations should ensure that, in the context of the pre-planning phase, their respective organizations establish a sound project governance structure with clear lines of responsibility, including a senior steering committee chaired by an accountable senior manager with access to external expertise, as well as a strong and experienced project management team responsible for the day-to-day planning and supervision.**

III. Planning phase of refurbishment/construction projects

68. In the United Nations system organizations, the planning of capital/refurbishment/ construction projects starts upon authorization by the legislative/governing body of the

organization concerned. Effective and efficient planning should combine all the following elements:

Chart 3. Elements of effective and efficient planning[41]


A. Project Management
• Project management team
• Project management tools
• Risk management
• Project manuals
B. Design development
• Project scope refining
• Project budget following detailed cost estimates
C. Preparing the contracts
• Applying international standards adapted to local reality
• Legal guidance, monitoring and support
• Selecting the appropriate contract type
• Construction bonds
D. Procuring the contracts
• Adapting the procurement process

A. Project management

69. In the refurbishment/construction projects of the United Nations system organizations, project management is viewed as the set of controls that provide reasonable assurance of sufficient management capacity to achieve mandates, including sufficient financial resources, competent human resources and appropriate project management tools.

70. Given that the senior managers of the United Nations system organizations are aware of the fact that the construction process involves a large number of risks, they take actions to mitigate risks and increase the likelihood that established project goals and objectives will be achieved. Project management plans, organizes and directs actions to provide reasonable assurance of achieving the project's goals and objectives. All the practitioners interviewed agreed that project cost awareness and control must be practised throughout the project planning and project design phases. To succeed in this, project teams have to start by establishing realistic assumptions as to the final concept, scope and cost as early in the life of the project as possible.

Project management team

71. Another point that most United Nations officials who were interviewed agreed with is that an effective project management structure is crucial. The results of case studies conducted by JIU confirm that every project has a need for direction, management, control and communication, using a structure that differs from that of

[41] Elaborated by the JIU report team.

the line management. As a project is usually cross-functional and involves partnership, its structure needs to be flexible and to have a broad base of skills for a specific period of time. Most interviewees agreed that knowledgeable teams should be selected as early as possible, and should comprise a blend of knowledge of international and local norms and standards for a better understanding of local professional standards.

72. The ILO officials revealed that the senior management had realized at an early stage that the in-house expertise was not suitable for the magnitude of the new project, due to a lack of experience with major constructions; it subsequently hired a new project manager with relevant experience, who had come from the private sector, in November 2012. Based on previous project experiences, IAEA recognized that it lacked the project management standard procedures and policies and the trained construction management professionals to lead a project of such complexity. Subsequently, a separate entity — the project management group — was conceived within IAEA to manage exclusively the entire ECAS project delivery. It assumed the role of project manager and was responsible for taking over contract management, quality assurance, cost estimating and accounting, and project planning and control.

73. The project manager is responsible for the day-to-day oversight and decision-making process related to the planning, design and construction of the proposed new facility. This includes all aspects of the project, such as establishing the project management team, the programmatic and functional requirements of the facility, hiring and managing the third-party architectural design firm, producing the contract documents that will be used to hire the third-party construction firm during the implementation phase, and liaising with host country authorities. The owner organization and the project manager are to be directly involved and held accountable in estimating project costs, controlling costs, and submitting changes to cost estimates for approval.

74. A legal officer who works under the supervision of the Office of Legal Affairs (OLA) of the United Nations is physically close to the Office of the Capital Master Plan and is available for consultations and discussions. Based on the CMP experience, OLA advised UNOG to also embed a legal officer in the SHP team. In the Inspectors' opinion, this practice should be used in all future large-scale projects across the system.

75. The case study of the WIPO construction project showed that WIPO had a seamless in-house and external project management team. The in-house team was trained by closely monitoring the construction work for six years; thus, it was able to take over the project management when the private firm that was contracted as the general contractor withdrew (see annex II, WIPO project milestones: 2012).

76. **The interviews showed that an independent technical advisor is required for all major projects**. The role of an independent technical advisor is to provide advice on technical and other related matters to a senior-level steering/advisory committee. Technical advisors are independent from the project management structures; they have no supervisory or reporting responsibilities vis-à-vis project teams, and report only to the steering/advisory committees. WTO adopted this practice and benefited from hiring a technical advisor who challenged some of the decisions. Based on its own positive experience, UNON underlined the importance of the independent technical advisor supporting the New Office Facilities Working Group, whose members were not familiar with construction. In some cases, the role

of the technical advisor could be played by an evaluation firm. As part of the due diligence in the ILO project, an independent review of cost estimates is being undertaken by a specialized cost evaluation firm.[42] ECA suggested the use of a peer review by an architect, an engineer or a project management firm, to look over what has been done and to give professional feedback.

77. Concerning all aspects of the historic and complex renovation of the United Nations Headquarters, the United Nations Secretary-General, when reviewing them, is advised not by a sole technical advisor, but by the six-member Advisory Board of the Capital Master Plan.[43] Although this board had been mandated by the General Assembly since the start of the CMP, its members were eventually appointed only in 2010.[44] The CMP Advisory Board's chairperson was nominated by the host country, while each member was selected from one of the five regional groups. All six are architectural experts and serve in their personal capacity. The CMP Advisory Board meets at least once each quarter in New York.

Management tools

78. Project managers have at their disposal a number of management tools. UNOPS officials informed the Inspectors that all its projects are managed based on the Projects in Controlled Environments (PRINCE2) methodology,[45] meaning that projects are managed by stages, there is a continuous business justification and learning from experience, roles and responsibilities are well defined and there is a special focus on product delivery. Naturally, this methodology has been also implemented by UNOPS in the project for the United Nations regional hub in Panama. The United Nations Development Programme (UNDP) followed the UNOPS example for the Green One United Nations House project in Hanoi. IAEA also used the PRINCE2 methodology for its ECAS project at its laboratories in Seibersdorf.

79. The United Nations Secretariat has obtained a three-year contract from an accredited PRINCE2 vendor, and introduced training for its staff on using this management method as an advanced training course in project management. Nevertheless, this management tool has not been adopted by the departments/sections/units involved in refurbishment/construction projects as the training course is not aimed at their staff. **The Inspectors are of the view that the capital/refurbishment/construction projects of the United Nations system organizations should take advantage of this type of management tool.**

80. For scheduling and managing project progress with respect to budget, the IAEA project management group used Earned Value Management,[46] a well-documented project management tool that can effectively track and monitor schedule and cost performance in real time. For each deliverable, the project was

[42] ILO GB.319/PFA/4, paras. 18 and 19.

[43] See http://www.un.org/News/Press/docs/2010/note6246.doc.htm.

[44] A/RES/63/270.

[45] PRINCE2 claims to be a flexible project management method that can be tailored to an organization, and is aimed at all types of projects. PRINCE2 is a de facto standard developed and used extensively by the Government of the United Kingdom and is widely recognized and used in the private sector, both in the United Kingdom and internationally. The development of PRINCE2 from the earlier PRINCE method was driven by user-based improvements, project management specialists and a review panel of 150 public- and private-sector organizations. See http://www.prince-officialsite.com/.

[46] See http://www.projectsmart.co.uk/earned-value-management-explained.html.

broken down into manageable elements and was resource-loaded, and a critical path method was then used for creating a schedule of activities. Associated budgets or cost accounts were calculated for each of the manageable elements, using the cost work breakdown structure. Then a schedule of projected costs was drawn up to match the work breakdown structure and the project activity schedule with the regular project financial reporting and objective estimates of percentage of completion of the work breakdown tasks. According to the case study on the ECAS project, the project management group had a graphic depiction of the project's performance.

81. IAEA has also adopted the "build-to-budget" approach. When a project management team adopts this approach, preparations are made to rank areas in a priority order, considering that subsequent construction might be phased depending on availability of funding.[47] Two out of the 14 projects reviewed have adopted this approach: the extensions to the laboratories at IAEA, and WTO's Centre William Rappard. Both projects have been completed within their allocated budgets. Moreover, the *extra muros* extension of WTO was designed by an architect selected through an international design competition, while it was constructed using the design-to-cost methodology.

Risk management

82. Risk management is a proactive project management tool used to reduce the susceptibility to losses incurred during a course of action, which leaves an auditable trail of changes. The process focuses project resources on reducing vulnerability, providing early visibility of potential problem areas and creating mitigation actions. Good risk management should involve the entire project team, including design, engineering, business, contracts, finance, purchasing, estimating, and project controls. The process is an ongoing, never-ending cycle — an iterative process of identification, quantification, modelling, management and monitoring. The analysis can include identified risks, estimate and schedule items, new risks, secondary risks, scope changes, change orders and actual costs, so as to provide a graphic depiction of the changing nature of project risk over time.[48]

83. As mentioned above, risk management with probabilistic modelling can be used to reduce project contingency from a guesstimate of 10-20 per cent to a quantitatively determined amount, typically in the range of 3-8 per cent. As the project progresses, and the confidence level in the project cost increases, early release of contingency amounts may be achieved and the money may be invested elsewhere.

84. **In project planning, a detailed risk plan should be developed that includes the identification and assessment of risks and the planning of strategies to minimize or avoid the risks**. Throughout the project, the risk plan will be monitored on a regular basis, reported on at regular intervals in the status reports, and updated as required. It is crucial for any risk management activity to be presented in a format that can be utilized on a day-to-day basis by all risk owners to assist in the effective mitigation of risks.

[47] IAEA-CN-184/214. Available from http://www.iaea.org/safeguards/Symposium/2010/Documents/PapersRepository/214.pdf.

[48] Scott Cullen, "Risk Management". National Institute of Building Sciences (2012). Available from https://www.wbdg.org/project/risk-manage.php.

85. In accordance with the WIPO Construction Charter, two independent risk registers were set up to analyse and mitigate risk relating to the project; one was kept by the in-house management team and another by the external project manager. However, the in-house management team was at times unable to regularly update its risk register, because it had not assigned adequate human resources for that task. **The Inspectors recommend that sufficient human resources be provided to maintain and update risks registers**.

86. The case study of the WIPO headquarters project found that although many risks were identified, dealt with and removed from the registers, one of the most important risks in the construction process,[49] namely default by the contractor, was identified but not mitigated. No mitigation plan for that risk was prepared, and none of the warning signs that the contractor might abandon the WIPO building unfinished were considered seriously.

Project charters or manuals

87. At the United Nations Secretariat, one of the recorded lessons learned from the UNON New Office Facilities project is the need to establish overall general operating procedures at the outset of a project. The Office of the Capital Master Plan is using such a project manual for the CMP. At the completion of the CMP, the Office of the Capital Master Plan will transfer its project manual to UNOG for the SHP. WIPO has also prepared an internal document entitled "Charter for the WIPO New Construction Project", which contains detailed information on the compliance with United Nations best practices and international standards, the new WIPO procurement and purchase general principles, and the guidelines on the management of major projects; on the roles and functions of the various boards and committees to be set up and the role of the project management firm; on the responsibility of the selection board in respect of pre-selection and selection processes for the project management firm, general contractor and financing entity; and on the oversight functions of the Audit Committee, Internal Auditor and External Auditor.

88. **The development of a project charter[50] or manual which includes all the aforementioned aspects of project management, setting its structure and framework, is an essential practice for any United Nations system organization undertaking a major renovation or new construction project**. Once an organization initiates the idea of a major construction/refurbishment, such a document has to be developed, detailing how it intends to interact with the private sector for construction/refurbishment purposes. Project charters or manuals should also include multiple sign-offs by incumbents and stakeholders. This way, changes of officials in the leadership positions of the organizations cannot lead to a deliberate altering of already taken decisions.

[49] David Arditi, "The risk of contractor default", keynote speech abstract. Department of Civil, Architectural and Environmental Engineering, Illinois Institute of Technology, Chicago, United States.

[50] See http://accessengineeringlibrary.com/browse/global-project-management-handbook-planning-organizing-and-controlling-international-projects-second-edition.

B. Design development

89. Gradually, a design that embodies the interests and expectations of all the project's participants and meets the owner organization's overall area requirements and budgetary parameters will emerge. At this stage, detailed schematic designs are produced; they show the site location and organization, general building shape, distribution of programme, and an outline of components and systems to be designed and/or specified for the final result. Design development enlarges the scale of consideration. Greater detail is developed for all aspects of the building, and the collaborative process continues with the architect or prime consultant facilitating the various contributors. From this phase, a detailed design is submitted to the project's supervising body for approval/improvement.

90. The design development provides an implementation plan for executing the project and its defined design directives. It describes key project milestones, funding sources, and uncertainties or risks that may affect project delivery. Beginning with an evaluation of the feasibility study, the design development proposes phasing, swing space plans and building turnover plans. The implementation plan must describe the required stakeholders' approvals and consultations, as well as strategies for meeting environmental, historical preservation and urban development requirements. The project management team uses the implementation plan to guide project phasing, construction procurement and risk management.

Project scope refining

91. During the design phase, as the parameters of a refurbishment/construction project become better known, its scope can be redefined to include missing details that were not apparent during the pre-planning.

92. The United Nations Secretariat has established several organization-wide objectives for its overseas facilities which should form the basis of the design objectives for any new construction project of the Secretariat worldwide. One of its main objectives is to achieve environmentally sustainable and resource-efficient facilities by means of reduced energy consumption and efficiency improvements in all aspects of facilities management. Accordingly, when interviewed, officials of the United Nations Environment Programme (UNEP), whose headquarters is located in the New Office Facilities of the UNON complex at Gigiri, stated that they had contributed to the efforts of UNON, which owns the compound, to include as many sustainability features as possible. However, the addition of some of these features, which were not clearly defined at the design phase, along with other changes made during the execution of the construction project, had made it difficult to manage the project. This had been recorded by UNON as a lesson learned, showing that the design objectives and functional requirements that had been left out during the project pre-planning phase should have been defined in detail at the design phase at the latest.

93. The case study on the WIPO project found that the project of the construction of the new WIPO building, which had been halted for a while, had recovered from its pre-planning shortcomings when it restarted in 2006. During that period, WIPO invested in the necessary specialist skills. WIPO took the time to properly redefine the project, to include financing options and feasibility analyses, and to prepare an effective budget. Moreover, it learned one vital project management lesson: **it is beneficial to invest upfront in defining the objectives and needs of the project**

before moving to the project's execution. In the Inspectors' view, the necessary investment should be made at this stage, so that all the necessary expert knowledge is provided before moving to the project's execution, thus avoiding the risk of additional costs and delays.

Project budget following detailed cost estimates

94. Depending on the size of the project, a cost estimate is performed at this point. The design cost estimates are the final estimates of the project cost. They are used to summarize the cost of a project's items of work and are part of the construction contract for the project. The final engineer's cost estimate is used for comparison with the various contractor bids received for the project and is the basis for the awarding of the contract. It should be noted that the money available to construct the project represents the total sum of the amount of the low bidder's contract bid item plus the amounts of the supplemental furnished materials and expenses, and contingency items.

95. The cost estimators need to research, compare and, above all, use their professional judgement to prepare a good cost estimate. Coordination between the project planning cost estimates, the project design cost estimates, and the standard specifications that will be used to construct the project is required. As confirmed by the officials interviewed, the UNON management had concluded that the construction estimates were in line with the tenders received, because the consultants had been provided with sufficient time to prepare the construction and contract documents.

96. Moreover, UNON officials stated that they had found beneficial the inclusion and involvement of the facilities section staff responsible for maintenance of the buildings, throughout the design and construction phases. The support and technical advice from the facilities staff had enabled products to be chosen that were easily available and maintainable on the local market; it had also ensured that problems experienced with products in the past were not replicated in the new building. Furthermore, their input had helped to standardize and align materials and fixtures, allowing continuity of systems with others used elsewhere in the compound.

97. Project design cost estimates should be detailed, because as engineering and environmental studies progress, more information, such as final contour mapping, materials and drainage information, refined traffic management plans, structure studies and evaluations from design phase constructability reviews, becomes available. This data increases the ability to prepare a more detailed cost estimate. Contingency sums which serve the purpose of mitigating project risks (unforeseen conditions, changes, regulatory requirements and design omissions) are also added to the project estimate. According to the Office of the United Nations High Commissioner for Refugees (UNHCR), contingency should decrease along with the refinement of design, but never below 10 per cent.

98. In terms of estimating project costs, IAEA, in its reply to the questionnaire, clarified that the ECAS project management group had used the parametric costing technique. This is a project management method for estimating future proceedings on the basis of an analysis of past events and trends. In order for parametric models to have any validity, they must be based on or proven using actual project data. It is largely the sophistication of the data analysis methods and the extensiveness of the underlying project data that determine the effectiveness of a modelling solution. According to IAEA, one valuable aspect of parametric estimating is the higher levels

of accuracy that can be built into it, depending on the original data. The project management group used details from previous IAEA projects and the inputs from the technical consultants and internal specialists to develop these parametric estimates.

99. According to UNOPS officials interviewed during the visit of the Inspectors to Panama, the construction of the United Nations regional hub in Panama City did not start as had been planned, since the competitive bidding process had resulted in an offer that was 20 per cent higher than the amount expected. The failure of that first procurement exercise, which resulted in a six-month delay compared to the initial project schedule, was due to (a) the failure of the first hired consortium to foresee and include in the project budget estimate the 13 per cent rate of inflation in the construction sector following the decision on expansion of the Canal, and to include in the project costs; and (b) the change of location of the land lot from uphill to downhill, resulting in the buildings having to be redesigned accordingly. Learning from this experience, UNOPS readjusted the tender and changed the procurement strategy, to assess what it could obtain using the same funds. As a result, the overall work for the construction of four buildings was divided into different lots.

100. At the end of this phase, the project management team must provide quality assurance for all the documents that define the project and its cost and prepare for the move to the next implementation phase. **In the Inspectors' opinion, all issues that affect quality should be carefully reviewed and assessed during the design stage.**

101. **Furthermore, the executive heads of the United Nations system organizations should ensure that project management teams of capital/refurbishment/construction projects have adequate professional expertise; that all aspects, operational processes and procedures of the project are established and documented; and that the project is managed using a professional project management tool in a systematic manner.**

C. Preparing the contracts

102. The development of contract documents involves translating the design development information into formats suitable for pricing, permitting and construction. No set of contract documents can ever be perfect, but its high quality can be achieved by scrutiny, accountability to the initial programme needs and careful coordination among the technical consultants at the design team. Decisions continue to be made at this stage, but changes in scope may become more expensive once pricing has begun; changes to the contract documents may also create confusion, errors and added costs, although new technology is beginning to synchronize references for all design team members.

Applying international standards adapted to local needs

103. The International Federation of Consulting Engineers (Fédération internationale des Ingénieurs-Conseils (FIDIC)) published in 1999 the first edition of a suite of four standard forms of contract, which are recommended for general users where tenders are

are invited at international level.[51] The official and authentic language of these forms is English, and if their conditions are to be used for domestic contracts or under certain jurisdictions, they have to be modified. The standardization and widespread use of standard conditions emerged from the need of contracting parties and the financial institutions involved in major complex projects to avoid complexity and deal with contract conditions they are familiar with.

104. With the aim of providing harmonized policies, procedures and standard documents for the procurement of works contracts, UNOPS has entered into a licence agreement with FIDIC to modify and adapt various conditions of contracts for works published by FIDIC. FIDIC construction contracts are widely recognized and used worldwide. Currently UNOPS is working on adapting to its particular needs the Client/Consultant Model Services Agreement (White Book), which is specially recommended for the purposes of pre-investment and feasibility studies, designs, and administration of construction and project management, where proposals for such services are invited on an international basis, and is equally adaptable for domestic agreements. In order to cover a wider range of options, UNOPS is also currently working on adapting the FIDIC Design & Build Contract to UNOPS-specific requirements.

Legal guidance, monitoring and support

105. OLA supports the Secretariat services that are involved in construction operations, and, in particular, the Office of Central Support Services (OCSS) of the Department of Management. OLA advises them what to do contractually from a practical point of view. The offices away from Headquarters (OAH) consult OLA for any major project. However, the headquarters and OAH do not always comply with all of its suggestions. OLA gives guidance, but cannot impose its suggestions: business people in the field examine the options and make their decisions. The record shows that OLA should be consulted as early as possible, as such consultations normally lead to transparent procurement actions. Most claims occur when OLA has not been involved from the beginning.

106. OLA stated that the United Nations contracts were jurisdictionally specific, depending on the local trades, i.e. tailored to meet the local needs. When offices want to make changes to the standard United Nations contract templates in use, they present the suggested changes to the Procurement Division which communicates them to OLA. The procurement services usually prepare first drafts of contracts; they typically ask for advice and then adjust the drafts to get the consent of OLA. The concern is that, in practice, the clauses in the OLA bid form are neglected until a problem emerges. **The Inspectors noticed that although OLA has drawn elements from UNOPS contracts, which were customized versions of the FIDIC models, it has not issued any guidance documents explaining which type of**

[51] http://fidic.org/node/149: The Book in this 1999 suite, marked as "First Edition 1999", comprises: (a) Conditions of contract for construction for building and engineering works designed by the employer: the construction contract; (b) Conditions of contract for construction for building and engineering works designed by the employer (MDB harmonized edition) — for bank-financed projects only: the MDB construction contract; (c) Conditions of contract for plant and design-build for electrical and mechanical plant and for building and engineering works designed by the contractor: the plant and design-build contract; (d) Conditions of contract for EPC/turnkey projects: the EPC/turnkey contract; (e) Short form of contract: the short form; and (f) Dredgers' contract (based on the short form of contract): dredgers' contract.

contract was recommended and which standards should apply depending on the geographical location of the project.

107. As stressed by UNON officials during the Inspectors' visit to the Gigiri complex, according to the lessons learned from the New Office Facilities project, the contract prepared by UNON under the guidance of OLA was not adjusted to the local standards, despite the advice given by consultants, including the independent technical advisor. This resulted in a contract that was difficult to administer because of inconsistencies and contradictions in the change order procedures.

108. Because of the complexity of the CMP, the internal legal expertise was not sufficient and an outside counsellor was hired for ad hoc tasks. The counsellor assisted with the contracts for the design services as well as the components of construction. Moreover, local expertise is required for construction projects; for example, UNOG has been advised to work with Swiss lawyers for the SHP. WIPO officials informed the Inspectors that they had used the legal services of a local academic institute that specializes in construction law.[52]

Selecting the appropriate contract type

109. During the planning phase of a project, procurement options are reviewed and the most appropriate ones are selected. The organization should select the most suitable procurement strategy in view of its decisions about the extent of the design to be provided by the contractor, the works to be executed under each contract, and the basis for determining the final contract price (lump-sum, measure-and-value, cost-plus and variations). Selecting the correct contract is crucial, as it frames all aspects of the works. Following prevailing local practices when establishing construction contracts also helps bidders to bid under conditions that they are familiar with.

110. UNOPS provides guidelines on when each contract should be applied, but further guidance can be obtained by consulting the UNOPS Contracts for Works guidance materials, during the specific training on works contracts, and by contacting the Head of Construction Management of UNOPS. The new UNOPS works contracts clearly describe the obligations of each party and when these have to be performed; the allocation of risks between the parties; critical procedures that must be followed; standard legal clauses that are common to all the contracts; and key contractual provisions and clauses that are unique to UNOPS.

111. The adapted UNOPS works contracts comprise the minor works contract, the short form construction contract, the measured price construction contract and the lump-sum construction contract. For each particular contract, a relevant standard bidding document for international competitive bidding has been prepared to promote transparency and to support efficient project preparation and implementation. In the UNOPS contracts, the clauses regarding the general conditions of contract never change and the specifics are included in the schedules and in the particular conditions, which always have to be reviewed and approved by the legal office.

112. Another type of contract is the design-build.[53] The advantage of this contract is that there is a single point of responsibility for design and construction within one team, to ensure a seamless integration, so that the inherent risks are mitigated. This approach allows a faster awarding of tasks due to less complex internal approval

[52] Institute for Swiss and International Law, Fribourg University Law School.
[53] See http://www.constructionplace.com/glossary.asp.

requirements, which results in faster overall completion of the projects. The case study of IAEA showed that, taking into account the complexity of the laboratories' requirements for all three ECAS sub-projects, the project management group found design-build contracts to be the most appropriate. UNOPS argues, and the Inspectors agree, that this type of contract might reduce the length of the procurement process, but such shorter procurement processes require specific expertise to ensure that the final construction product will be built to the expected quality standards. Design-build contracts imply a risk transfer to the constructor, who has no design expertise. Consequently, this uncertainty and risk allocation is likely to be translated into increased construction costs.

113. **The Inspectors are of the view that adequate provisions with regard to variations and adjustments, risk and responsibility, force majeure, delay damages, claims, disputes and arbitration should be included in the contracts**. Furthermore, contract terms and conditions should be clearly worded and structured for easy reference by all parties during the construction schedule. A good practice would be to include practice notes and flow charts for project processes as annexes to the contract.

114. Guaranteed maximum price (GMP) contracts[54] were awarded for each construction sub-project of the CMP. Since the nature of works is refurbishment, and field conditions are not fully known at the time of the awarding, the GMP contract is the most beneficial to the organizations, as it provides for compensation based on actual costs incurred plus a set fee. As a result of such an approach, the construction manager is responsible for all cost overruns, and all cost savings will be returned to the United Nations. Furthermore, GMP is a local modality for construction in New York. Accordingly, from a commercial perspective, it is prudent to use local standards when establishing construction contracts.

115. The organizations should conduct a careful review of the types of construction contracts commonly used, keeping in mind the disadvantages of the chosen contract types and, subsequently, identifying them as risks for the project.

Construction bonds

116. Many things can go wrong in a large construction/refurbishment project. Bearing this in mind, **construction bonds, also called construction surety bonds or contract bonds,[55] are a mandatory prerequisite for any project beyond a certain size**, and for most (if not all) public works projects at the national level. A bond is used by investors in construction projects to protect against an adverse event that causes disruptions, failure to complete the project due to insolvency of the builders, or the job's failure to meet contract specifications. There are generally three parties involved in a construction bond — the party or parties building the project, the investor/eventual owners, and the surety company that backs the bond.

117. Surety bonds serve as a guarantee for the satisfactory completion of a project. This will entail having a collateral property or investment to back up the requirements of the surety agency. A performance bond is usually issued by a bank or an insurance

[54] See footnote 12 in "Report of the Board of Auditors, Volume V, Capital master plan". *Official Records of the General Assembly, Sixty-eighth Session, Supplement No. 5* (A/68/5 (Vol. V)).

[55] See http://www.suretybonds.com/contract-bonds.html and http://www.investopedia.com/terms/s/surety.asp.

company, both of which act as a "surety". Both the public and the private sector require the issuance of performance bonds. Organizations require performance bonds and payment bonds for projects to protect the Member States' investments.

118. If the contractor does not complete the project as specified in the contract, the surety bonding company will either pay for the completion of the project or hire a contracting firm to complete the project. A performance bond protects the owner from possible losses in the case where a contractor fails to perform, or is unable to deliver the project as per provisions established in the contract. The performance bond is the guarantee given by the contractor for quality performance of the job executed. It holds until the period of warranty/defect liability is over. Sometimes the contractor defaults or declares itself bankrupt; in such situations, the surety is responsible for compensating the owner for the losses. Such compensation is defined as the amount covered under the performance bond.[56]

119. During their missions to Nairobi and Addis Ababa, the Inspectors were informed, by the respective UNON and ECA officials interviewed, about how contractual clauses had protected the interests of the organizations with respect to delays and poor performance by the contractors. The international architectural services firm contracted by the United Nations Procurement Division for the construction of the UNON New Office Facilities had its contract terminated in 2006 for not respecting the set deadlines and causing a significant delay. During the second procurement round, the contract for construction of the ECA New Office Facilities was awarded to a local firm, which failed to deliver on time, resulting in a delay of 22 months. ECA could have been compensated for the significant delay in completing the New Office Facilities and the subsequent loss of rentals. However, following close consultations with OLA on the available courses of action against the contractor, a decision was taken not to terminate the contract at this stage but rather to put the firm on notice of forthcoming legal action at the end of the contract. The ECA senior managers interviewed by the Inspectors stated that they had earlier decided to also postpone another legal action advised by OLA until the construction had been completed. This postponed claim was grounded on contractual clauses regarding compensation for damages resulting from cost increases, and contingency depletion caused by erroneous calculations by the contracted local engineering company, which is still supervising the construction.

120. **The Inspectors recommend that the executive heads of the United Nations system organizations ensure that their respective legal services pay attention to the preparation of refurbishment/construction contracts, so that contractual clauses and construction bonds which aim at protecting the organizations are not amended or omitted by other entities involved.**

D. Procuring the contracts

121. According to UNOPS, a good practice is to check and to approve the design prior to procurement. Construction should not begin before proper construction drawings, and thorough and complete architectural and technical dossiers, are prepared prior to selecting a construction contractor. Similarly, UNOG decided that it would not proceed to procure a contract for the execution of the SHP before the

[56] See http://construction.about.com/od/Insurances/a/What-Is-A-Performance-Bond-Insurance.htm.

development of detailed drawings had been completed.[57] The reason for waiting before looking for tenders is that a fully developed design allows for accurate cost estimates, which are used as the basis for selecting the constructor.

122. In its response to the review questionnaire, UNOPS recommends the inclusion of a contingency sum of about 6-12 per cent in the procurement submission as a contingency allowance to cover unforeseen and unknown components that might require variations. The contingency value as reflected in the budget will not be specified in the contract, as the contract has well defined and controlled mechanisms to manage contingency. The purpose of the contingency sum is to ease and speed up UNOPS internal procurement procedures, to allow for variations without the need to formulate a new procurement process.

123. Along these lines, it is also recommended to include as many items as possible in the bill of quantities or schedule of rates[58] that could be reasonably expected to be covered by the contingency. Any variation that uses the contingency but is not covered by the rates in the bill of quantities or schedule of rates would need to be a subject to a regular procurement regime, potentially resulting in delays. During the review, it was found that different United Nations system organizations used different percentages for the contingency sum, varying from 10 per cent of the project budget (e.g. IAEA's ECAS project and the GOUNH in Hanoi) up to 20 per cent (e.g. the UNESCO headquarters renovation). **In the Inspectors' opinion, the executive heads of the United Nations system organizations should adjust the contingency sums taking into consideration local practices**.

Adapting the procurement process

124. The United Nations system organizations have defined procurement procedures for contracts. However, the Inspectors found that these procedures are not suitable for refurbishment/construction contracts. In cases of refurbishment/construction, the procurement process should be more flexible. UNOPS has specific procurement procedures for construction, which are explained in the UNOPS Procurement Manual.[59] **In the view of the Inspectors, the organizations across the system need to develop a thorough procurement policy, specific to the demands of major construction projects, and provide dedicated contracts committees with the adequate staff to implement this policy, for the entire duration of the projects**. The policy should predefine, among other things, approval limits and responsibilities, predetermined weighted selection criteria, bidder risk identification, a contract post-award review policy, contract termination procedures, contract amendment procedures and contract archiving procedures.

125. During an interview at WTO, the Inspectors found that the organization had followed its standard procurement process. Nevertheless, it had increased the delegation of authority for approval of contract amendments to avoid delays during the project's execution. According to ECA, the United Nations standard procurement procedures are too complex. The ILO project manager explained that he had consulted

[57] A/68/372.

[58] International Federation of Consulting Engineers (FIDIC), *FIDIC Contracts Guide*, 1st ed. (2000), Glossary of contract terminology, p. 340.

[59] See https://www.unops.org/SiteCollectionDocuments/Procurement/UNOPS%20procurement%20manual%20EN.pdf.

with OCSS on how to adapt the current procurement process to make it more flexible and more appropriate to the needs of the refurbishment project.

126. According to the IAEA case study, in the case of the ECAS project, the documents for all tenders were compiled by OLA. The project management group reviewed the proposals for technical accuracy and provided recommendations for selecting potential bidders. Once bids were received, they were reviewed for compliance by the relevant technical staff and the project management group, and a commercial review was carried out by the designated procurement officer. The final selection was certified by the Procurement Division in the Department of Management. The selection criteria used was based on "best value for money" and on consideration of the contractor's experience and past performance, management capacity, technical approach to the scope of work, and fulfilment of specific tender requirements.

127. The case study on the renovation of the UNESCO headquarters revealed that the procedure for selecting a new project management firm did not comply with the provisions of its procurement manual, since the firm selected had an unjustified advantage vis-à-vis other companies. UNESCO claimed that the selected firm, because of earlier work, was in possession of technical information that the other applicants only had later on.[60]

128. **The Inspectors recommend that the executive heads of the United Nations system organizations ensure that refurbishment/construction contracts are awarded in compliance with the financial regulations and rules as well as the procurement procedures of their respective organizations without any exception, respecting the procurement activities' guiding principles, including transparency through competition and best value for money.**

IV. Executing and completing refurbishment/construction

A. Executing, monitoring and controlling

129. The execution of a project consists of the processes used to complete the work defined in the plan to accomplish the project's requirements. The execution process involves coordinating people and resources, as well as integrating and performing the activities of the project in accordance with the project management plan. The deliverables are produced as outputs from the processes performed, as defined in such a framework.

130. The purpose of project execution is to deliver the project's expected results. The objective of the construction phase is to build the project to drawings and specifications at the quality level indicated in the documents, within the budget, schedule and scope defined and approved by the legislative/governing body. The contractor is responsible for facilitating the delivery, installation and construction of the project in coordination with project management and the design consultant's team.

[60] UNESCO, 181/EX/42, p. 13.

Contract management

131. Contract management and contract administration are often used synonymously, although contract management is commonly understood as a broader and more strategic concept that covers the whole procurement cycle, including planning, formation, execution, administration and closeout of a contract, and goes beyond the day-to-day administrative activities in the procurement cycle. However, it is difficult to draw the line between the two terms and the majority of the United Nations system organizations commonly refer to "contract management" when describing the contract administration phase.[61]

132. Contract management is the process that ensures that all parties to a legally binding agreement fully meet their respective obligations as efficiently and effectively as possible. The contract management process allows a business unit to track and manage the clauses, terms, conditions and commitments throughout the life of its contracts to maximize business benefits and minimize risks. At the United Nations, it is related to the "best value for money" principle, and highlights the importance of that principle as a means to achieve an efficient use of available financial resources. In cooperation with the procurement office, the project manager manages the project contract.

133. UNON officials informed the Inspectors that the New Office Facilities project had a number of additional requirements that had only become apparent during the construction. While this could have had financial implications for the project, the project team managed to accommodate them by reaching an agreement with the contractors. Otherwise, the project budget's inbuilt contingency would not have been sufficient. UNON officials also informed the Inspectors that in order to facilitate the process when variations occurred, they had amended the change order procedure.

134. UNDP officials, through their reply to the questionnaire, mentioned that the project team for the Green One United Nations House project had had a similar experience. While the refurbishment/construction work is currently under way, some changes are required in order to deal with structural deficiency of the existing building structure as built, compared with the surveyed information.

Monitoring and controlling project execution

135. Monitoring and controlling consists of the processes performed to observe project execution so that potential problems can be identified in a timely manner and corrective actions can be taken, when necessary, to control the execution of the project. The key benefit is that project performance is observed and measured regularly to identify variances from the project management plan. According to UNOPS, additional requests and changes in the user's requirements have had an impact as variations of the project scope, with significant increases in the final budget and in the completion of a project. Project cost overruns are a top concern in construction/ refurbishment projects.

136. Change orders are primary cost triggers. They signal an additional cost, being the contractor's pricing responses to unforeseen changes in the project. Contractors

[61] Inter-agency Procurement Working Group, *United Nations Procurement Practitioner's Handbook*, section 3.10.1, available from https://www.ungm.org/Areas/Public/pph/ch03s10.html; and *United Nations Procurement Manual*, revision 7, para. 1.4 (2013), available from http://www.un.org/depts/ptd/pdf/pm.pdf.

use them to ensure that they will be compensated for works that expand beyond the original scope, while the owner wants the project to be completed at a final cost that does not exceed the original quoted contract price.[62] **In the Inspectors' view, there has to be a regular engagement between the contractor, the design consultant's team and the project management team to prevent any issue that could result in a budget increase, scheduled delay or change of the scope that should be brought to the attention of the legislative/governing body.**

137. A change control system funded under the IAEA ECAS project's contingency allocation was set up to manage design-related changes. To manage any changes in the scope of contracts, the project management group established a change control system in the form of a "request for information". Any IAEA-initiated requests for design changes were documented in "requests for information", which were used to transfer technical communications between IAEA and the contractor. As mentioned in paragraph 80, an Earned Value Management system — a common project management control tool — which was introduced at the planning phase, was also used to monitor and communicate progress and actual costs.

138. Value engineering is another tool used in many refurbishment/construction projects of the United Nations system organizations to avoid cost overruns. Value engineering is a method used to reduce the cost of existing projects. During the execution of projects, the price of refurbishment/construction materials described in the detailed project design may increase. In such a case, with a view to keeping expenses within the project budget, organizations may accept to change refurbishment/construction materials, replacing them with other items of lower value but of equal functionality, so that the proposed change does not have any negative impact on the overall design and building function.

Reporting on progress in executing the project

139. Progress reports are important in tracking the project's progress. They are snapshots of the status of the project, as they disclose project data at different points of a project's life. Organizations may decide to set them at key points in the project to check whether the project is advancing according to the schedule. As the Inspectors were informed via the reply from UNDP to the questionnaire on the refurbishment of the Green One United Nations House in Hanoi, the project team produces regular updates for stakeholders (monthly) and for end users (twice a month), according to the communication plan, and uploads (twice a week) video compilations of works' progress to intranet sites and to the internet. **The Inspectors have consulted some of the posted videos produced by the project team and found them very informative; they consider them to be a good practice of transparency**.

140. The United Nations set up the Post-award Review Committee in 2009 to improve the scrutiny of change orders and contract amendments for CMP. A consistent risk-based methodology has been applied in order to reduce the previously reported backlog of 218 contract amendments in March 2012 to 34 at the time of preparation of the present report. The Committee revealed only minor compliance issues; no material problems arising from the review of contract amendments were detected. According to BOA, the United Nations "did not establish from the outset of the project a robust occupier-related change control

[62] See www.dentaleconomics.com.

mechanism and clear accountability to control the level, nature and cost of the changes being requested by occupier departments and offices and ensure that the cost implications changes were fully appreciated".[63]

141. UNDP officials admitted that their organization had discontinued executing construction projects in the field due to major overruns that had occurred decades ago. The lesson learned was that such projects required the presence on the site of the foreman, who managed them tightly. The UNESCO case study revealed that contract amendments were drafted without any degree of precision, and sometimes with no supporting documentation to justify the additional works. Cost overruns were funded without being previously verified. The United Nations system organizations should ensure, prior to launching major construction/refurbishment projects, that they have mechanisms in place that can control all changes requested after the design is developed. **In the Inspectors' opinion, projects should not proceed without a prior agreement on how change orders should be handled. Normally, all change orders should be approved before work is performed**.

B. Auditing

142. Both external and internal auditors of the United Nations system organizations play an important role in the oversight of capital/refurbishment/construction projects. The recommendations of BOA have been utilized in the control and progress of the CMP.

143. Historically, internal audit review of construction projects focused on contract administration, i.e. compliance with contract terms, auditing payment applications, change orders, identifying cost recovery opportunities. These classic cost-focused audit activities are important; however, **the most important business focus of construction projects is timely completion schedules and construction quality**. Auditors can add value by taking a closer look at these business risks associated with capital projects. The nature of risk issues is expanding beyond the typical competencies that audit professionals generally possess, and may require subject-matter experts to assist with the risk evaluation process.[64] For example, OIOS used the assistance of a private professional services firm to conduct an in-depth technical construction audit of CMP in 2012,[65] while having itself previously audited CMP project scheduling, procurement and contract management, including change orders.[66]

144. The findings of the present review indicate that action on external audit recommendations with regard to construction/refurbishment projects has often been delayed without justification. In order to ensure due controls and compliance, **the Inspectors recommend that the executive heads of the United Nations system organizations ensure that there is frequent auditing of refurbishment/**

[63] Report of the Board of Auditors, vol. V, Capital master plan. *Official Records of the General Assembly, Sixty-eighth Session, Supplement No. 5* (A/68/5 (Vol. V)).

[64] Institute of Internal Auditors, "Emerging trends in auditing construction projects: from compliance to insight". *The Gaming Auditorium*, vol. 8, No. 4 (2005). Available from http://www.theiia.org/Gaming/index.cfm?iid=414.

[65] A/67/330.

[66] OIOS audit reports AC2009/514/04 and AC2011/514/01.

construction projects as well as adequate follow-up and prompt action on the implementation of the audit recommendations.

C. Taking over and commissioning

145. Taking over occurs when the works are, for all intents and purposes, completed and ready to be utilized by the end user. Although taking over is often referred to as substantial completion, it is not always the case that the works are completely finished. A general requirement is that the works can be utilized and occupied by the user.

146. The replies to the questionnaire revealed that only UNOPS has a standard formal taking-over process. For UNOPS, taking over includes the issuing of a taking-over certificate to the contractor on possession of the completed project, returning to the contractor half of the retention and reducing the bank guarantee for performance by half. This is done in line with the actual values specified in the contract.

147. Essentially, the commissioning is an all-inclusive process that formalizes review and integration of all project expectations during the planning, design, construction and occupancy phases by inspection and functional performance testing, and oversight of operator training and record documentation.[67] It involves ensuring that the facilities and the installed system as a whole meet the design intent under typical operating conditions. It delivers preventive and predictive maintenance plans, tailored operating manuals and training procedures for all users to follow. **The project managers should engage with the facilities management services at an early stage and should seek agreement on all appropriate milestones and actions for the development of maintenance requirements and project handover processes.**

D. Defects notification period and final completion

148. The defects notification period is the time period between taking over and the final completion of the works. The defects notification period is granted to allow sufficient time for any defects to be detected and fixed. Therefore, this period should be long enough to allow for the completed refurbishment/construction works to pass through one seasonal cycle or a full cycle of use. Generally, the defects liability period should include at least one year of observation during the first period of life of the completed project after its delivery. This practice is applied by a number of organizations. For example, UNESCO reported that its project was covered only by the one-year defect liability period known in France as the *parfait achèvement* warranty.[68]

149. Furthermore, internal UNOPS best practice recommends that the start of a 12-month defects liability period and the taking over should be simultaneous with the handover of the works to its client or end user. Throughout the defects notification period, UNOPS must carry out periodic inspections of the works, highlighting any defects and having the contractors fix them at their cost. If these defects are major and impede the use of the works, it should be considered that the defects liability period for that item restarts, thus extending the total defect liability

[67] JIU/REP/2013/2.

[68] See http://vosdroits.service-public.fr/particuliers/F2958.xhtml.

period and contract length. This would in most cases affect UNOPS client agreements, therefore it should be taken into consideration prior to extending the defects liability period. Extending the defects liability period on any one item is not encouraged, unless it is a major issue with a likelihood of the defect repeating.

150. During an interview with WIPO officials, the Inspectors were informed that all new buildings in Geneva must receive a two-year warranty for defects (in the form of a bank warranty) and a five-year legal warranty for defects, as stipulated by Swiss construction law. In addition, the parties are free to agree on a 10-year warranty from the constructors, which is not mandatory by law.

151. Final completion is the end of the contractor's obligation or responsibility. At this point, the constructor prepares to make the final handover to the end user or client. According to the findings of the present review, **this is a critical stage where the United Nations system organizations should take the necessary steps to ensure better coordination, before returning the bank guarantee and making the final payment**. In accordance with the UNOPS Procurement Manual, a supplier performance evaluation is mandatory for all procurement activities valued at a certain amount and above. When the last payment under a contract has been made and no pending claim is left, the supplier performance evaluation form must be completed. Only once the project is complete should the final balance of the retention be returned by the United Nations system organizations to the contractors.

152. During their visit to UNON in Nairobi, the Inspectors found that the interviewees were convinced that, as a good practice, **project team members should remain available and be involved throughout the defects liability period on completed refurbishment/construction projects**. These opinions were supported by the three case studies of the present review.

153. **The Inspectors recommend that the executive heads of the United Nations system organizations, in order to promote best practices, should systematically prepare reports on lessons learned through the implementation of capital/refurbishment/construction projects in their organizations and share them with all the organizations within the framework of the future working group of the High-Level Committee on Management (HLCM) of CEB on facilities management,[69] so as to ensure knowledge-sharing across the United Nations system.**

V. Synergies and practices across the system

A. Sustainability in projects of the United Nations system organizations

154. The United Nations promotes sustainability and climate neutrality and makes efforts to reduce its environmental footprint. On the observance of World Environment Day on 5 June 2007, the United Nations Secretary-General called on all United Nations agencies, funds and programmes to become climate-neutral and "go green". Since then, all United Nations system organizations have been working together to put in place systems and procedures to measure and reduce their environmental impacts.[70] These collaborative efforts are supported by UNEP, as the

[69] See recommendation 3 of the present document, p. 41.

[70] See http://www.greeningtheblue.org/about-greening-blue.

lead agency for environmental issues within the United Nations family, which claims to lead by example and practise what it preaches. In 2008, UNEP took the initiative of establishing the Sustainable United Nations (SUN) facility,[71] with a mandate to support the organizations in achieving these objectives.[72]

155. The work to create a more sustainable United Nations system is coordinated through the Issue Management Group (IMG) on Environmental Sustainability Management,[73] which reports to the Environment Management Group (EMG).[74] This IMG is serviced by SUN. In addition to the technical support provided to EMG through IMG, SUN provides technical support to the relevant networks of the CEB High-Level Committee on Management.[75]

156. In 2010, the United Nations launched the Greening the Blue website to raise awareness of the importance of sustainability throughout the United Nations system and to provide information on the progress in improving its internal sustainability performance.[76] Another effort linked with Greening the Blue is the UNEP Sustainable Buildings and Climate Initiative (SBCI),[77] which is a partnership of major public and private sector stakeholders in the building sector working to promote sustainable building policies and practices worldwide. SCBI also provides advice to the UNEP regional offices, at their request. The UNEP Regional Office for Latin America and the Caribbean, as a member of the steering committee for the construction of the United Nations regional hub, has been reviewing the standards of this project in close consultation with SBCI. For the UNON New Office Facilities project, UNEP prepared dossiers based on university research studies carried out by scholars to support solutions suggested.

157. Buildings are large entities and, as such, they impact upon the environment in various ways, as they consume large quantities of physical resources such as materials and energy in their construction, maintenance and use. More specifically, research has shown that buildings are responsible for at least 40 per cent of global energy use and greenhouse gas emissions but also offer some of the fastest and least expensive solutions for reducing their environmental impact.[78] The United Nations system organizations have integrated environmental considerations and features into their construction/refurbishment projects in order to improve energy efficiency and obtain environmental benefits.

158. Some organizations have opted for environmental certification using internationally recognized national ranking systems: Leadership in Energy

[71] See http://www.unep.org/sun/.
[72] See http://www.unspecial.org/2012/11/greening-the-united-nations-with-sun/.
[73] http://www.unemg.org/index.php/2013-04-23-12-48-02/2013-04-23-13-07-27.
[74] See http://www.unemg.org/.
[75] JIU/REP/2010/1, para. 19.
[76] See http://www.greeningtheblue.org/about-greening-blue.
[77] See http://www.unep.org/sbci/AboutSBCI/MissionandGoals.asp.
[78] See the website of the Environmental and Energy Study Institute website at: http://www.eesi.org/addressing-climate-change-energy-efficient-buildings-best-practices-switzerland-07-oct-2009.

and Environmental Design (LEED)[79] for green buildings and MINERGIE[80] for energy efficiency.[81] For example, the United Nations City complex, which houses almost all the Copenhagen-based United Nations system organizations, has received maximum points for energy efficiency under the LEED rating system, achieving LEED platinum status. Inspired by this achievement, the host country of the United Nations regional hub in Panama City initially targeted its future construction to achieve this highest level in LEED certification too. However, the materials required for platinum certification are not available in the local market; therefore, the future construction in Panama City may achieve only gold certification — one level below platinum. The United Nations CMP reportedly tracked the LEED criteria, among other national standards of Member States, without aiming at certification. ILO will adopt the MINERGIE standards, which are recommended in the host and neighbouring countries.

159. Other organizations (ECA, UNOG, UNON and the United Nations regional hub in Panama City) have made efforts to improve the energy efficiency of their new or refurbished building via improved design and insulation, more efficient lighting, heating, ventilation and air conditioning equipment, and the installation of solar panels. However, the United Nations system lacks guidance regarding the selection of sustainability standards in construction. The World Bank mandated a private company to provide technical expertise in identifying measurement and verification issues and options regarding energy efficiency projects implemented in enterprises. This resulted in an overview of international measurement, verification experience and the lessons learned in the area of energy savings, published in 2013.[82]

160. **The Inspectors note that the commitment of the CEB-HLCM and its close work with the EMG through its IMG on Environmental Sustainability Management to develop and implement environmental sustainability management systems,[83] as recommended by JIU,[84] will have a positive impact on construction/refurbishment projects as well, provided that the executive heads of the United Nations system organizations acknowledge the importance of coherence in this area and prioritize it.**

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[79] Leadership in Energy and Environmental Design (LEED) is a suite of rating systems for the design, construction, operation and maintenance of "green" buildings, which is intended to help owners and operators of buildings to find and implement ways to be environmentally responsible and resource-efficient. Buildings can qualify for four levels of certification: certified, silver, gold or platinum. Further information is available from the website of the U.S. Green Building Council, at http://www.usgbc.org/leed.

[80] MINERGIE® is a registered sustainability brand for new and refurbished buildings that meet the MINERGIE building standards for lower energy consumption at a higher level of comfort. It is registered in Switzerland for licensed use, while its core markets are France, Germany, Italy and the United States of America. Further information is available from www.minergie.ch.

[81] http://www.eesi.org/addressing-climate-change-energy-efficient-buildings-best-practices-switzerland-07-oct-2009.

[82] World Bank, "Energy efficiency measurement and verification issues and options", Final report (2013). Available from https://www.thepmr.org/system/files/documents/China_EE_MRV_July2013.pdf.

[83] Report of the nineteenth Senior Officials' Meeting of the Environment Management Group (19 September 2013). Available from http://www.unemg.org/index.php/component/docman/cat_view/25-2013-documents?Itemid=.

[84] JIU/REP/2010/1, recommendations 7, 8, 9, 11 and 12.

B. UNDG Task Team on Common Premises

161. Premises shared by the United Nations system organizations are an important component of the Secretary-General's United Nations reform programme. To date, there are 59 officially designated United Nations Houses worldwide.[85]

162. The United Nations Development Operations Coordination Office (DOCO) decided on the establishment of the Task Team on Common Premises (TTCP) as a working group composed of representatives of the four United Nations agencies (UNDP, UNFPA, UNICEF and WFP) forming the executive committee tasked with providing guidance and tools for United Nations country teams that intend to engage in United Nations House/United Nations Common Premises renovation, construction and/or relocation projects.[86] The primary mandate of TTCP is to review plans for United Nations Houses from the cost efficiency aspect. TTCP keeps a roster of the projects reviewed. the review roster has included the United Nations regional hub as a unique case that involves more than one United Nations country team, given that its senior users were the four executive agencies of TTCP.

163. TTCP has been working quite well for almost a decade as an operational group meeting weekly in New York at the headquarters of the organization that is chairing the team. WFP participates in the meetings via videoconference from Rome. In principle, three out of the four agencies must be present at TTCP meetings in order to have a quorum. The agencies are represented by their technical experts. The Committee used to employ an architect full-time for advice. Due to funding constraints, this practice was discontinued.

164. The TTCP members dedicate about 25 per cent of their time to TTCP tasks to fulfil their mandate. They would like to see ethics, legal and financial services involved too, but this is a complex matter. An expansion of TTCP may render consensus more difficult. They are not considering including more organizations because all four currently participating agencies are committed to and recognize each other's contracts committee; depending on which agency is leading the project, the respective standard contract template is used for contracting services for the project.

165. TTCP disseminates lessons learned and identifies experts to enhance its own expertise. All TTCP guidance documents are remotely accessible and are posted on the website of the United Nations Development Group (UNDG).[87] Some organizations fully adopt the set of standard UNDG templates when formalizing their participation in a project, such as standard "memorandum of understanding" or "memorandum of agreement" templates. **The Inspectors are of the view that all organizations should adopt the practice of using these standardized UNDG documents, as this will save time and resources.**

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[85] For the Secretary-General to officially designate United Nations common premises as a United Nations House, they must house the office of the Resident Coordinator and the offices of all resident country directors/representatives of UNDP, UNFPA, UNICEF and, as appropriate, WFP. Further information is available from http://www.undg.org/content/common_premises_un_house.

[86] TTCP is linked to the work of the DOCO Working Group on Country Office Business Operations that was introduced in 2008, but pre-existed as part of coordinated programming among UNDP, UNFPA, UNICEF and WFP within the framework of their Joint Consultative Group on Policy established in 1981. Further information is available from http://www.undg.org/content/working_groups_networks/country_office_business_operations_issues.

[87] See toolkit.undg.org/undg/toolkit/site/index.

166. In September 2013, TTCP sent to all resident coordinators a publication developed by the International Code Council Inc.[88] entitled *Performance-based Guidelines for the Design and Construction of UNDG Common Premises Office Buildings*.[89] The publication intends to provide all United Nations country team operations management teams with "an easy-to-use and flexible set of documents" on "key building performance issues" for guidance with the design, renovation or construction of United Nations Common Premises (UNCP) office buildings. This initiative aims at creating UNCP that have comparable levels of safety, function and performance, irrespective of the country in which they are located.[90]

C. The practice in the United Nations Secretariat

167. At the United Nations Secretariat, the Facilities and Commercial Services Division, along with the Procurement Division, of OCSS, is in charge of designing and managing construction at Headquarters; it also supports and coordinates with its OAH and regional commissions in the planning and implementation of major rehabilitation and construction projects, and facilitates the exchange of best practices through the Inter-Agency Network of Facilities Managers (INFM).[91]

168. The General Assembly approved the expansion of the capacity of the Division's Overseas Management Unit, due to its central role in the coordination and support of overseas projects and its increased responsibilities. Furthermore, the Unit was directed to develop guidelines for construction projects to assist, and ensure consistency in, the implementation of projects by the OAH and regional commissions. In 2012, the Unit drafted the requested guidelines, which have not yet been finalized. The guidelines address all aspects of project implementation, from project initiation to completion, including costing, scheduling, and the introduction of criteria and standards.

169. **The lessons learned from projects are compiled by OCSS, which is the central repository for lessons learned from all major capital construction projects undertaken by the Secretariat**. For example, UNON submitted to OCSS the lessons it had recorded since the start of construction in 2009 up until the substantial completion of its New Office Facilities in December 2010, a summary of which was included in the report of the Secretary-General to the General Assembly on New Office Facilities, in July 2012.[92] The eleventh annual progress report on the implementation of the CMP also included a section on lessons applicable to future capital construction projects.[93]

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[88] A member-focused association based in the United States. See www.icesafe.org/AboutICC/Pages/default.aspx.

[89] See www.undg.org/docs/13180/UN-Guidelines-masterV1.pdf (advanced written permission required).

[90] Letter signed by Mr. Chris Hesling of UNFPA, UNDG-TTCP Chair, dated 23 September 2013.

[91] See http://www.unsceb.org/content/infm-homepage.

[92] A/67/217, paras. 17-27.

[93] A/68/352.

D. Role of UNOPS

170. In 2010, the General Assembly highlighted the role of UNOPS as a central resource for the United Nations system in procurement and contracts management, as well as in civil works and physical infrastructure development, including the related capacity development activities.[94] UNOPS is a not-for-profit entity and ensures that any savings made during implementation are returned to the funder or reinvested to boost project impact. UNOPS is an operational arm of the United Nations that helps a range of partners to implement projects, including construction. It offers a menu of tailored project management services ranging from workshops on the fundamentals of project management to full programme implementation. [95]

171. UNOPS has a global roster of skilled project managers who can provide on-call support, reducing the time it takes to launch new projects, while its field project teams receive a vide range of support from its central project management practice and other internal specialists. This team of senior project managers and subject matter experts provides internal consulting services, sustainability guidelines and tips, and training and certifications etc.[96] The *UNOPS Infrastructure Project Design Planning Manual*, a document which is currently under review, brings together technical objectives and functional statements, performance recommendations and requirements and minimum standards for infrastructure design, with a special focus on vertical structures. This manual, and the Environmental Management System, provide guidance for implementation to be used by design practitioners, project managers, procurement and legal practitioners, managers and directors.

172. Bearing in mind that selecting the appropriate contract for a given project is crucial, as it frames all aspects of the works, UNOPS has drafted the UNOPS Contracts for Works Guidance Material. This guide is distributed as part of the specific training on works contracts and provides guidelines on when each contract should be applied. Further guidance can be obtained by consulting the UNOPS head of construction management.

173. UNOPS has committed itself to implementing sustainable infrastructure projects. For this purpose, it has launched the "Policy for sustainable infrastructure", which incorporates social and economic development and environmental protection into the design and implementation of all UNOPS infrastructure activities, to ensure internal coherence within the United Nations system and with United Nations initiatives such as the Millennium Development Goals.[97] This policy provides the framework to facilitate the design of projects that prevent, mitigate or remedy adverse impacts on individuals, communities and the environment.

174. The JIU team noticed that not all the interviewees were aware of the project management capacities of UNOPS, or of the fact that UNOPS could be contracted at any stage of a construction or refurbishment project without having been involved from the initial stage. The TTCP members agreed that UNOPS was the expert

[94] UNOPS was established in 1974 as part of UNDP and became an independent entity in 1995; further information is available from https://www.unops.org/english/About/mission-and-vision/Pages/landing.aspx. For the mandate, see A/RES/65/176.

[95] See https://www.unops.org/english/Services/project-management/Pages/Approach.aspx.

[96] See https://www.unops.org/english/Services/project-management/Pages/default.aspx.

[97] See https://www.unops.org/SiteCollectionDocuments/Multimedia/unops_policy_for_sustainable_infrastructure.pdf.

agency in this area. While other organizations shared this view, they had the perception that its fees and charges were too high.[98] Moreover, selecting UNOPS is perceived as a major disadvantage in a case of dispute, because the organizations think that they would not have appropriate means to settle as they would have done with a private firm. The legal officers of UNOPS commented that all partners were provided with the appropriate means to settle any dispute that may arise. In the case of a dispute with a United Nations organization, they used the standard means of settlement among United Nations system organizations, privileging non-litigious means, primarily negotiations among executive heads.

E. Exploring synergies

175. There is no forum in the United Nations system dedicated exclusively to refurbishment/construction projects. The Inter-Agency Network of Facilities Managers touches upon construction and renovation issues, such as strategic capital planning and funding, as a forum that brings together facilities managers. Its participants come from the United Nations system organizations as well as other multinational organizations (e.g. development banks, the Council of Europe, the European Commission, the Organization for Economic Cooperation and Development etc.). Its goal is to create a network of members from the United Nations common system and to enable them to exchange information on best practices, common approaches and policy directives that will enhance the safety, reliability, efficiency and operations of the facilities while integrating new technologies into the buildings' infrastructure.

176. The 2011 INFM survey included a section on capital projects, which enquired, in particular, about the extent of the involvement of the facilities management staff in the project phases. The networking through INFM is proving to be helpful. Informally, organizations are sharing lessons learned and exchanging views on policies. A good example is OCSS, which provided assistance to the new ILO project manager during the planning phase by sharing experiences and guidance documents of the United Nations. The UNOG management, in view of the launch of its SHP, took the initiative of convening a Geneva-based INFM subgroup to benefit from local lessons learned from projects that had been completed successfully and in a timely manner. The subgroup includes WIPO, WTO and the European Organization for Nuclear Research (CERN).

177. All four members of TTCP are represented at INFM. TTCP recognizes that the United Nations system lacks a centre of excellence in the field of construction. The chair of TTCP noted that TTCP lacked the capacity to adopt this substantive and demanding role. Nevertheless, **it would be beneficial for the United Nations system as a whole to have a coordination body to disseminate best practices and lessons learned, irrespective of the scale and type of refurbishment/construction projects**. Another TTCP member underlined the lack of leadership in engineering and the need for a network in construction management that would function in parallel to TTCP, and suggested that a universal code of practices and standards for all United Nations agencies should be introduced. UNDP noted that it was finalizing a UNDP policy on civil works, as its programmes included large-scale construction projects (e.g. bridges, prisons etc.).

[98] See https://www.unops.org/english/About/policies/Pages/Pricing-policy.aspx.

178. These existing initiatives are beneficial; however, they need to be streamlined or combined, formalized, resourced and promoted across the United Nations system. UNEP and UNOPS should play a role regarding guidance in construction/refurbishment projects. This could start by their active involvement in INFM. **The review concluded that the secretariats of all the United Nations system organizations should recognize and adequately support INFM.**

F. Lack of long-term planning and investment

179. JIU, in its previous reports, has noted that the reactive approach of the United Nations system organizations regarding maintenance, and the cumulative effect of its postponement for many years, could result in huge expenses in the future that regular budgets might not be able to handle. Major refurbishment projects become necessary not only because of the facilities' accumulated problems of the facilities, which result from a lack of regular maintenance, repairs and replacement of systems, but also from the need to improve their performance incorporating new technologies and to upgrade them to up-to-date standards. Major construction projects may also respond to the need to accommodate an increasing number of staff members and/or expanding operations.

180. In this context, JIU has, over the past decades, kept drawing the attention of legislative/governing bodies to the fact that neglecting the maintenance of facilities because of chronic underfunding would prove both dangerous and expensive in the medium and long-term.[99] This assertion is supported by the findings of the present study as well. The Inspectors stress that not much progress has been noted and that the relevant JIU recommendations have not yet been implemented.

181. However, funding refurbishment/construction and the maintenance of facilities over a long-term horizon is problematic for most United Nations system organizations. The most usual funding schemes involve a mixture of resources and contributions from the public or private sector: one-time or multi-year assessments; donations; miscellaneous income (e.g. from the rental or sale of real estate property); loans, repayable with interest or interest-free; and financing through the issuance of bonds. Member States should see their contributions not only as a substantive capital expenditure, but also as an investment in the organizations' net worth, as it will be accounted by IPSAS, improving and increasing the value of the organizations' assets and simultaneously reducing the risk of its accrued liabilities, in a similar way to the After Service Health Insurance[100] scheme of the United Nations. This way, Member States would avoid unnecessary future assessments.

182. As discussed in paragraph 28, the United Nations system organizations need to develop a global strategy and prioritization system of capital improvements for their facilities. Programming at organization level will allow Member States, which are the main contributors to the budgets of the United Nations system organizations, to have an overview of all the projects planned by each United Nations system organization worldwide, as well as of their time horizon. Such a globalized perspective of the entirety of the refurbishment/construction needs across the system in times of a global financial crisis, that is also affecting the contributions of major

[99] JIU/REP/1981/4, recommendation 2; JIU/REP/1992/9, recommendation 1; JIU/REP/2001/1; JIU/REP/2006/4, recommendation 4.

[100] See http://www.unsceb.org/content/after-service-health-insurance.

contributing Members States, will help all Member States to plan better in the long term and to foresee and respond more effectively to incoming demands for refurbishment/construction funding.

183. An optimal solution discussed with officials to avoid major costly refurbishment projects caused by a lack of adequate funds for efficient maintenance would be that an amount equal to a percentage of the building's value, as determined by IPSAS, should be automatically allocated for the building's regular maintenance as a portion of the regular budget allocated for overall maintenance; using this approach, buildings would be repaired and maintained on a regular basis. During the interviews, the Inspectors found that a common practice by various governments was to allocate to the regular budget an amount of 2 to 3 per cent of public buildings' value, towards maintenance. This percentage should be able to cover the costs of minor or routine maintenance, major maintenance involving replacement of parts of or entire systems, and a reserve building fund to be used for unforeseen repairs not covered by major maintenance.

184. Currently, regular budgets of the United Nations system organizations do not take facilities' maintenance needs into consideration properly. This situation is illustrated by the case of UNON. Despite the construction of the New Office Facilities of UNON inside the Gigiri complex, which increased the overall UNON office facilities' built area by 60 per cent, the maintenance budget remained the same and did not take into consideration the additional maintenance needs relating to the new facilities. This budget risks being insufficient to cover future recurrent costs, especially in view of the specialized and more frequent maintenance that some of the new features of the UNON New Office Facilities require. To prevent such a risk, the proposed regular maintenance resources for the headquarters during the 2014-2015 biennium are to cover the major maintenance costs of a fully reoccupied complex, including necessary and regular preventive maintenance to safeguard the investment made by CMP and reflecting revised contractual arrangements for the new installations.[101]

185. **The executive heads of United Nations system organizations, within the framework of the CEB-HLCM and its future working group on the subject, should develop a common system-wide policy and standards regarding the appropriate percentage of the value of a building to be dedicated to its maintenance. This policy should then be presented to the legislative/governing bodies of the United Nations system organizations for consideration**.

VI. Conclusion

186. Member States undertake major investments in the real estate of the organizations in the expectation that these will contribute to greater efficiency and effectiveness of their functioning and operations. Given the high cost, magnitude, complexity and risks involved in capital or other major refurbishment/construction projects, any significant failure in achieving their expected objectives would have a detrimental effect on the investment.

[101] A/68/6 (Sect. 33). General Assembly. Main part of 68th session, supplementary information on agenda item 134, part XI, 22 April 2013.

187. Oversight by legislative/governing bodies, being the main stakeholders in capital/refurbishment/construction projects, should not be underestimated. It is essential that these major investments — for both the organizations and Member States — be closely monitored and that clear reporting mechanisms be established throughout their execution, that look at their progress and the achievement of expected benefits. Close oversight by governing bodies would escalate the importance of the project, provide better discipline and motivation on the part of senior management, and facilitate timely decision-making by governing bodies for a successful project.

188. During the present review, on the basis of the case studies and the interviews conducted, it was noted that underperformance issues relating to the contracted companies and individuals had been disregarded and had not been brought to the attention of the legislative/governing bodies in time, due to the lack of adequate periodic reporting mechanisms.

189. In order to facilitate the monitoring and oversight of capital/refurbishment/construction projects, there should be periodic and frequent internal reporting from senior management of the United Nations system organizations to their respective legislative/governing body. Senior managers should frequently discuss project plans, progress and related problems, so that they can have ownership of issues and take timely measures to prevent or mitigate risks.

190. The following recommendations will enhance the overall control of capital/refurbishment/construction projects, from their conception and throughout the project cycle:

Recommendation 1

The executive heads of the United Nations system organizations should establish close monitoring and periodic reporting mechanisms for capital/ refurbishment/ construction projects throughout all project phases.

Recommendation 2

Taking into account the high cost and high risk of capital/ refurbishment/construction projects, the legislative/governing bodies of the United Nations system organizations should exercise their monitoring and oversight role with regard to their respective projects on an ongoing basis, including during the pre-planning, planning, executing and completing phases, ensuring cost efficiency and the achievement of the overall goals of the projects.

191. A new working group on facilities management should be established, as INFM is not sufficient on its own to promote existing best practices and develop relevant system-wide policies. The Inspectors stress the need for the senior managers of the United Nations system organizations to recognize the importance of creating an adequate framework for preparing and launching effective capital/refurbishment/construction projects across the system, in view of the large investment and long-term commitment that they require.

192. The implementation of the following recommendation is expected to enhance coordination, cooperation, and the dissemination of best practices:

Recommendation 3

The Secretary-General, in his capacity as the Chair of the CEB, should request the Chair of the CEB-HLCM to establish a working group on facilities management that emphasizes issues related to capital/refurbishment/ construction projects.

193. Every capital/refurbishment/construction project is different and faces unique challenges. However, the review identified 19 best practices to be followed during the different project phases, irrespective of the location, scale and type of a project.

194. The implementation of the following recommendation will contribute to the dissemination of best practices and strengthen coherence across the system:

Recommendation 4

The executive heads of the United Nations system organizations should ensure that the 19 best practices presented in the present review are followed when undertaking capital/refurbishment/construction projects.

Best practices for capital/refurbishment/construction projects

Pre-planning

1. Feasibility studies should be adequately funded, so that the executive heads of the United Nations system organizations submit for approval to their respective legislative/governing body well-analysed and detailed projects.
2. Appropriate risk management methodologies should be included as early as possible.
3. A sound project governance framework should be introduced establishing a governance structure with clear lines of responsibility, including a strong and experienced project management team.
4. The in-house pre-project team in charge of the pre-planning tasks should prepare the transition to the future project management team.
5. Preliminary budget estimates should be calculated by professionals knowledgeable about local markets.
6. Associated or indirect costs should be calculated and included in the project budget starting from its inception.

Planning

7. A project charter or manual that includes all aspects and operational procedures of the project is essential when undertaking a project.
8. The project is managed using a professional project management tool, in a systematic manner.
9. A detailed risk plan should be developed that includes the identification and assessment of risks and the planning of strategies to minimize or avoid the risks.
10. The project management team should have adequate professional expertise.
11. Continuity of the same project management team throughout the different phases of the projects should be preserved.
12. An independent technical advisor is required for all major projects.
13. All issues that affect quality should be carefully reviewed and assessed during the design stage.
14. Legal services should provide guidance documents explaining which type of contract is recommended and which standards should apply, according to the geographical location of a project.
15. Legal services should make sure that all refurbishment/construction contracts contain, and do not amend or omit, all the necessary contractual clauses and construction bonds that aim at protecting the organizations.
16. Each organization across the system should develop a thorough procurement policy specific to the demands of major construction projects, and provide dedicated contracts committees with the adequate staff to implement that policy, for the entire duration of the project.

Executing and completing

17. Projects should not proceed without a prior agreement on how change orders should be handled.

18. The project managers should engage with the facilities management services at an early stage and should seek agreement on all appropriate milestones and actions for the development of maintenance requirements and project handover processes.

19. Reports on lessons learned through the implementation of capital/refurbishment/construction projects in each organization should be shared with all the United Nations system organizations so as to ensure knowledge-sharing across the system.

Annex I

Overview of selected projects of the United Nations system organizations

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
	Initial Cost Estimate/Area	Revised Cost/Scope	Completion Cost					
United Nations: Construction **UNON New Office Facility (NOF) Nairobi** **Housing UNEP & UN-Habitat headquarters**	2001: 11,045 m^2 US$ 13.4	2008: 16,500 m^2 1 floor added (3-storey), security requirements US$ 25.2	2011: US$ 23.9	Completed December 2011: 1-year defect liability period ended March 2011: Occupancy-Inauguration May 2009: Construction commenced	NOF Working Group External	Classical Approach Bill of quantities contract	Competitive process: Initially RFPs (HQ) to international firms 2007 onwards: Expressions of Interest (EOIs) to local firms Requests for Proposal (RFPs) for Consultants	A/RES/63/263 A/62/794 A/67/217 -Completed below budget due to unused budgeted security requirements -Sustainability building "showcase" due to synergies of environmental features
United Nations: Construction **ECA New Office Facilities (NOF) Addis Ababa**	2002: 7,712 m^2 (4-storey) US$ 7.7	2006: 9,550 m^2 2 floors added (7-storey) US$ 11.4 2008: IT, security requirements, internal access roads, parking, landscaping and back-up power supply added US$ 14.3 2012: US$ 16.1	2013: US$ 15.3	On-going Completion deadline extended from February 2012 to December 2013 (22 months delay) May 2010: Construction commenced	Internal and External: Project Management Team composed of administrative, financial and technical staff members, and architect & engineer consultants	Classical Approach Provision of construction administration and supervision service General Contractor Bill of quantities contract	Competitive process: RFPs Service and Institutional Contracts for Consulting Engineers and Architects	A/68/517 A/RES/56/270 A/RES/60/248 A/RES/62/238
United Nations: Refurbishment **UNHQ OCSS Office Renovation New York**	US$ 24	US$ 24			Internal and External: -Overall supervision by Chief of Section; -Dedicated project manager (Chief of Unit); -Dedicated project coordinator; -external project management (firm)	Classical Approach Fixed-price Lump-sum General Contractor	RFPs Competitive tendering for Consultants	

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
	Initial Cost Estimate/Area	Revised Cost/Scope	Completion Cost					
United Nations: Refurbishment & Construction **Capital Master Plan (CMP) UNHQ complex New York**	1998-1999: options included a 25-year reactive repair approach as well as plan for demolition and reconstruction 2000: 70,000 m^2 7-building complex Ranging from US$ 728 to 1,421 (3 options: 3-, 6- and 12-year plan)	2006 US$ 1,877 2007 5-year accelerated strategy opted 2012 US$ 2,227 (including the Enhanced Security Upgrades (ESU) project which is funded by the host country)	2013 US$ 2,215 (including the ESU project, see year 2012)	On-going Construction Phase May 2008 Construction commenced Completion planned in 2014/2015 -provided associated costs and secondary data centre are budgeted because they cannot be absorbed by the approved budget -South Annex and Library buildings suspended despite in the scope of the project	Internal & external Office of the Capital Master Plan (the core project team comprises UN staff members. The team is complemented by external consultants)	Construction Manager/ General Contractor Trade contracts between the Construction Manager and the trade contractors (Lump sum contracts).	Competitive bidding for Construction Manager	A/55/117 A/57/285 A/62/799 A/63/270 A/RES/62/87 A/RES/55/238 A/67/350 A/68/5 (Vol. V) A/68/352 LEED Tracked criteria along with standards of Japan, UK and Australia The landmark building complex was inaugurated in 1951; it was designed by a team of 11 architects, incl Harrison, Niemeyer et Le Corbusier
United Nations: Refurbishment & Construction **UNOG Strategic Heritage Plan (SHP) for the "Palais des Nations" Geneva**	2009: preliminary study 2011: conceptual engineering and architectural study (8-year mid-term option); Approval of CHF 2.8 for contractual services for a detailed cost analysis and phasing plan CHF618	2013: detailed implementation plan; detailed budgetary cost analysis based on the medium-term (8-year) option; incl. 25-year cost-benefit analysis vs. continued reactive maintenance; newly identified additional issues CHF837		On-going Pre-planning Phase Construction planned to commence in 2017 Completion planned in 2023 (On condition set by the General Assembly that the renovation does not start before: (a) it decided so, (b) CMP was completed)	Internal and External		Competitive bidding RFPs for Consultants	A/66/279 A/66/7/Add.3 A/RES/66/247, section VII, paras. 7-8 Architects Nénot, Vago, Flegenheimer, Lefèvre and Broggi designed the basis for the original parts of the Palais des Nations, whose foundation stone was laid in 1929. The building was extended in 1952 and 1973

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
	Initial Cost Estimate/Area	Revised Cost/Scope	Completion Cost					
United Nations: Refurbishment **Energy-saving measures "Palais des Nations" Geneva**	2012: CHF50	2013: CHF50		On-going Construction Phase Completion planned in 2014				The second largest United Nations building worldwide Funded by anticipated voluntary contribution of the host country
ILO: Refurbishment **Headquarters Renovation Project Geneva**	2004-2011 (studies): Main built area: Offices 16.500 m^2 Conference 3.950 m^2 garages 10.000 m^2 underground garages 38.600 m^2 The "2010 plan": CHF 203.3 (for 2011-2018)	CHF 89.1 (covering renovation of the 2/3 of the building) CHF 114 (1/3 of funds, i.e. CHF 45 is missing)	2013: Enhanced scope cost CHF273	On-going Design Phase: Some detailed designs were delivered in September 2013; further report on estimates expected in March 2014 Completion planned in 2019 (phased approach 2022)	Internal and External	Classical approach		GB.319/PFA/4 MINERGIE One of the largest office buildings in Switzerland designed by Camenzind, Beaudoin, and Nervi; it was built in 1974
UNAIDS/WHO: Construction **Jointly owned building: (50%) UNAIDS HQ for (50%) office space for WHO Geneva**	2001: 14 000 m^2 CHF 61.2	Redesign: CHF 66	CHF 65.8	Completed in 2006 (5 months delay) November 2006: Inauguration 2001: Construction commenced	Internal and External: Technical Committee: -Director, FIPOI; -Project Coordinator, UNAIDS; -Coordinator, Infrastructure and Support Services, WHO, Architects	General Contractor Turnkey contract (fixed amount)	Competitive bidding International Architectural Competition	

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
	Initial Cost Estimate/Area	Revised Cost/Scope	Completion Cost					
UNESCO: Refurbishment **Renovation of Main Building Offices alias "the Belmont Plan" Paris**	1997: US$ 19.8 1999 (Belmont Report): Phase I: US$ 21.4 Phase II: US$ 75.4 Phase III: US$ 35	2001: Phase II: US$ 76.3	2009: Phase II: US$ 84 Total I-II: about US$ 100 2008: on hold Phase III: US$ 63.2 (priced in 2002) for 4 buildings located in Miollis/ Bonvin sites built in the 70's	2009: Phases I-II completed (38% HQ renovation) 2001: Construction commenced 2011: CMP €301.5 incl. Phase III, and non-renovated parts of the main building on Fontenoy site	External and Internal: -Project Director (external specialized firm), -Advisory architect (external expert), -Headquarters Division (internal technical team)	Contracts by building trade	Competitive bidding procedure RFPs for Consultants	36 C/50 Building of Fontenoy site, known since 1992 as the "World Heritage Centre" designed by Breuer, Nervi and Zehrfuss inaugurated in 1958
WIPO: Construction **New Conference Hall Project Geneva**	Originally part of the "New Building Project" and budget; separate since 2008: 900 seats with commensurate conference facilities	2011: CHF 72.7		On-going Completion planned in 2014 2011: Construction commenced	-Construction Committee - Construction Management and Coordination Committee-Internal Project Monitoring Team (IPMT) -External project manager (firm)	As of August 2012: Classical approach (until July 2012: General Contractor) fixed-price contract	Selection Board was used for the General Contractor	WO/PBC/14/10 environmentally -friendly features: its cooling system uses water through the Genève Lac Nations network; A wooden main structure and interior finishing, natural light, hybrid ventilation with natural and mechanical means
WIPO: Construction **New Building Project Geneva**	1996-1997: studies 1998: CHF82.5 (a 10-year needs forecast 500 work and 580 parking places, incl. Conference hall of 600 seats)	2002 (re-costing study): CHF 190.5 2005 (scaling down following halt 2003-2004): CHF 125.5 2008: CHF 161.7 (updated and consolidated budget)		2011: Completed, start of occupancy and inauguration April 2008: construction site re-opened	-Construction Committee -Internal Project Monitoring Team (IPMT) -External project manager (firm)	General Contractor Design-Bid-Build	International Architectural Competition Selection Board was used for the external project manager and the General Contractor	WO/GA/27/4 Next to the landmark Arpad Bogsch main building, its cooling system uses water through the Genève Lac Nations network; natural light, hybrid ventilation with natural and

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
	Initial Cost Estimate/Area	Revised Cost/Scope	Completion Cost					
								mechanical means; about 1,400 m^2 of the roof surface is insulated from summer heat by earth and vegetation
IAEA: Construction **Enhancing the Capabilities of Safeguards Analytical Services (ECAS) Laboratories Seibersdorf**	2007-2009: -Environmental Samples Clean Laboratory Extension (CLE) -Nuclear Material Laboratory (NML) -Infrastructure and Security Improvements €80.3	2010: €9 (CLE) €36.7 (NML) €13.4 € 6.8	2013: CLE €8.9	CLE completed (NML on-going) September 2013: CLE Inauguration Mid-2010/2011: CLE/NML Construction commenced NML completion planned in 2014	Project Board Internal PRINCE2 methodology	Design and build Build-to-Budget Managing Contractor (firm)		GOV/2007/59
Delivering as One Office (pilot initiative): Refurbishment **Green One United Nations House (GOUNH) Hanoi**	2008: 7,347 m^2 US$ 9.6	2010 (revision): (without indirect costs) US$ 10.6 (without indirect costs) US$ 15.4		On-going Design Phase Completion planned at the end of 2013	**UNDP** Project Board: Members are heads of Ex-Com and other agencies and Government's representative PRINCE2 methodology	Classical approach Construction Contractor	International bidding procedures Professional consulting service Contract	-Renovation of existing United Nations Apartment Building -Environmental Action Plan
United Nations regional hub (Host Country advancing funds to be recovered): Construction **UN entities' HQ for the Latin America and Caribbean Panama City**	2009: 21,000 m^2 (4 buildings) and 18,000 m^2 (parking and installations) US$ 50	detailed design without contingency US$ 64	2013: Revised without contingency (3 + 1 buildings: phases I & II) US$ 58.3	On-going Contracting Phase Change of procurement strategy Completion planned in 2016	**UNOPS** Project management team: composed as follows: Steering Committee, Project Board, Project Manager and a Specialist Team PRINCE2 methodology	*Not decided yet*	Design: International bidding procedures adopted Service Contract	LEED gold

Participating Organization: Project type/ Title/Location	BUDGET (in millions)			PHASE, START & COMPLETION DATES	GOVERNANCE, PROJECT MANAGEMENT & METHODOLOGY	TYPE OF APPROACH, CONTRACT & CONTRACTOR	PROCUREMENT METHOD	Authorities/ Standards/ Remarks
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WTO: Refurbishment & Construction **Renovation and Extension of the Centre William Rappard Geneva**	2008 Renovation: CHF 70 *Intra-muros* extension: CHF 20 *Extra-muros* extension: CHF 50 Complementary projects: CHF 20				Steering Committee and Construction Projects Committee	General contractors Design-to-Cost methodology for *extra-muros* extension		Environmental features (use of water from Lake Geneva, Geneve Lac Nations network) The landmark former ILO headquarters

Annex II

Milestones of three case studies

WIPO project: creation of a new administrative building with car park, additional storage areas and a conference room

1995	The assemblies of the member States approved studies for a "new building" project.
1996-1997	WIPO conducted several studies to determine its needs regarding projected increases in staff, larger conference facilities, storage areas and parking (for up until 2008).
1998	The assemblies of the member States approved the project for a new building with a car park, additional storage areas and a conference hall.
2000	The firm that won the international architectural competition launched in 1999 began its detailed design of the new building.
2002	On the basis of the final design, the assemblies of the member States approved the revised budget for the new building project.
	The External Auditor's audit report recommended a project management structure; the Director of Buildings was named as the project manager.
2003	Awarding of the construction contract to a general contractor.
2004	Termination of the construction contract, as the general contractor failed; project was halted.
2005	Preparation of an internal "Charter for the WIPO New Construction Project".
2006	A project management firm began working as an external management team.
2008	Signing of a construction contract with a new general contractor; the construction site reopened.
	Setting up of two parallel risks registers.
	Revision of the "Charter for the WIPO New Construction Project".
2009	The assemblies of the member States approved the new conference hall as a separate project.
2011	Completion of 96 per cent of the new building; inauguration and start of a phased moving in and occupancy.
2012	Amicable and jointly agreed termination of two contracts with the general contractor due to its failure to meet agreed deadlines.

2013	WIPO substituted itself, in place of a general contractor, for the remaining 4 per cent (finishing and repair works) until full completion of the new building. WIPO drew up, for the first time, a six-year detailed and sustainable CMP to be used a planning tool, covering the period from 2014 to 2019.

UNESCO project: renovation of headquarters - the Belmont Plan*

1992 **1996**	Assessments were made of the seriously deteriorated state of the premises, built in 1955, due to inadequate maintenance.
1999	Preparation of a project plan for a major renovation of the headquarters.
2000	The Executive Board approved the establishment of a Steering Committee to act as the owner of the project and a Headquarters Committee to act as a project management team.
2004	Awarding of the contracts for the architectural and engineering works.
2005	Awarding of the main contract lot to a construction firm.
2006	Termination of the contract with the construction firm via memorandum of understanding, due to the deterioration of its services.
2008	Signing of a contract with a new construction firm.
2009	Completion of 38 per cent of the renovation works.
2011	Presentation to the General Conference of a capital master plan aiming at renovating the rest of the UNESCO premises, with cost estimates of over €300 million.

* The project was named after Joseph Belmont, expert in public works, provided by the host country to render his services.

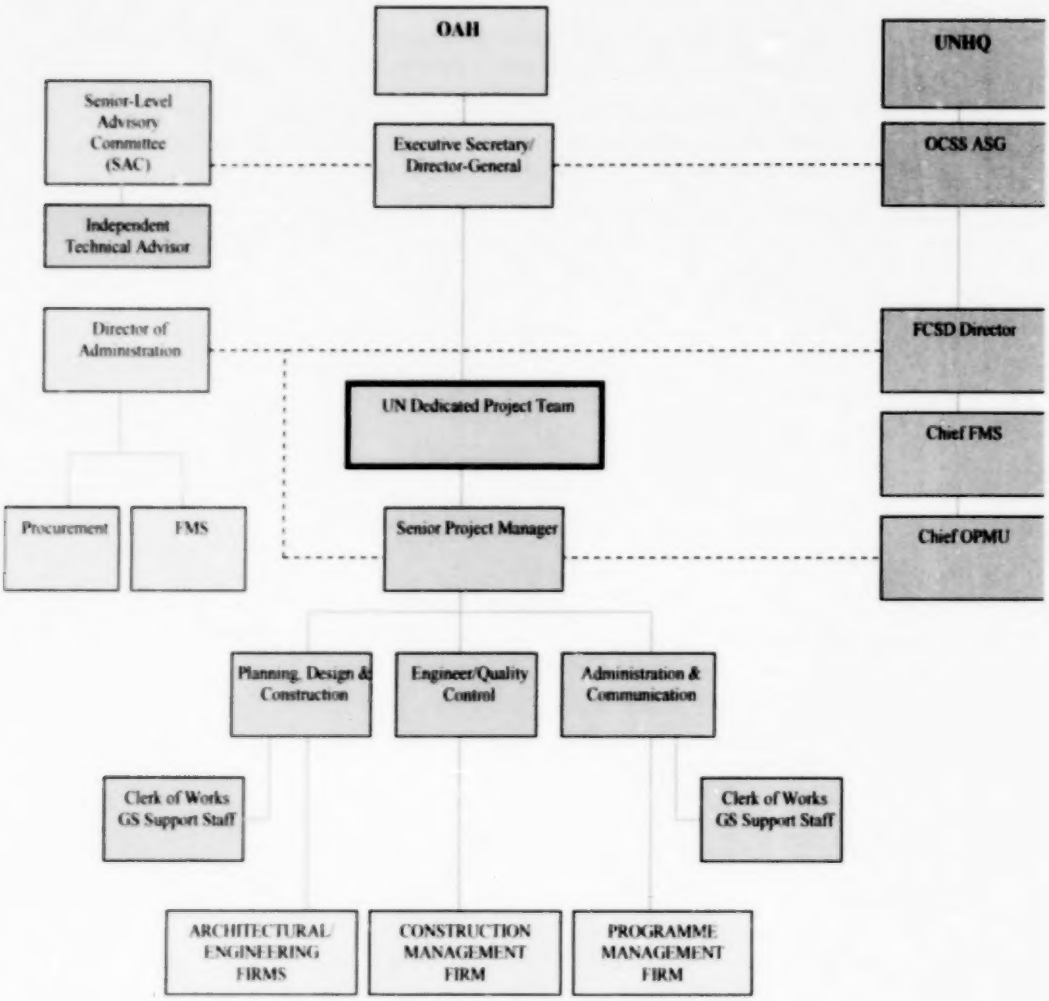
IAEA project: Enhancing the Capabilities of Safeguards Analytical Services (ECAS)

2007	IAEA informed its Board of Governors of a potential problem regarding the sustainability of the existing Safeguards Analytical Laboratory.
2008	The Board of Governors was presented with a project entitled Enhancing the Capabilities of Safeguards Analytical Services (ECAS) laboratories. Subsequently, feasibility studies were conducted by consultants.
2010	A project management team was established and developed an overall baseline master schedule of the three ECAS project deliverables: 1. Environmental Samples Clean Laboratory Extension (CLE) 2. Nuclear Material Laboratory (NML) 3. Infrastructure and Security Improvements A contract for the design and construction of the CLE was concluded, the conceptual design was approved in May, and construction began in June.

2011	The CLE, which was completed on time and slightly under budget, was inaugurated/opened.
	Construction of the new NML started in mid-2011, with its completion for use envisioned for 2014.
2013	The remaining two ECAS deliverables remain on target, at 85 per cent completion for deliverable 2 and 41 per cent for deliverable 3.
	The Office of Internal Oversight Services of IAEA conducted an internal audit on the project management of the ECAS project; the audit report had not yet been issued at the time of the review.

Annex III

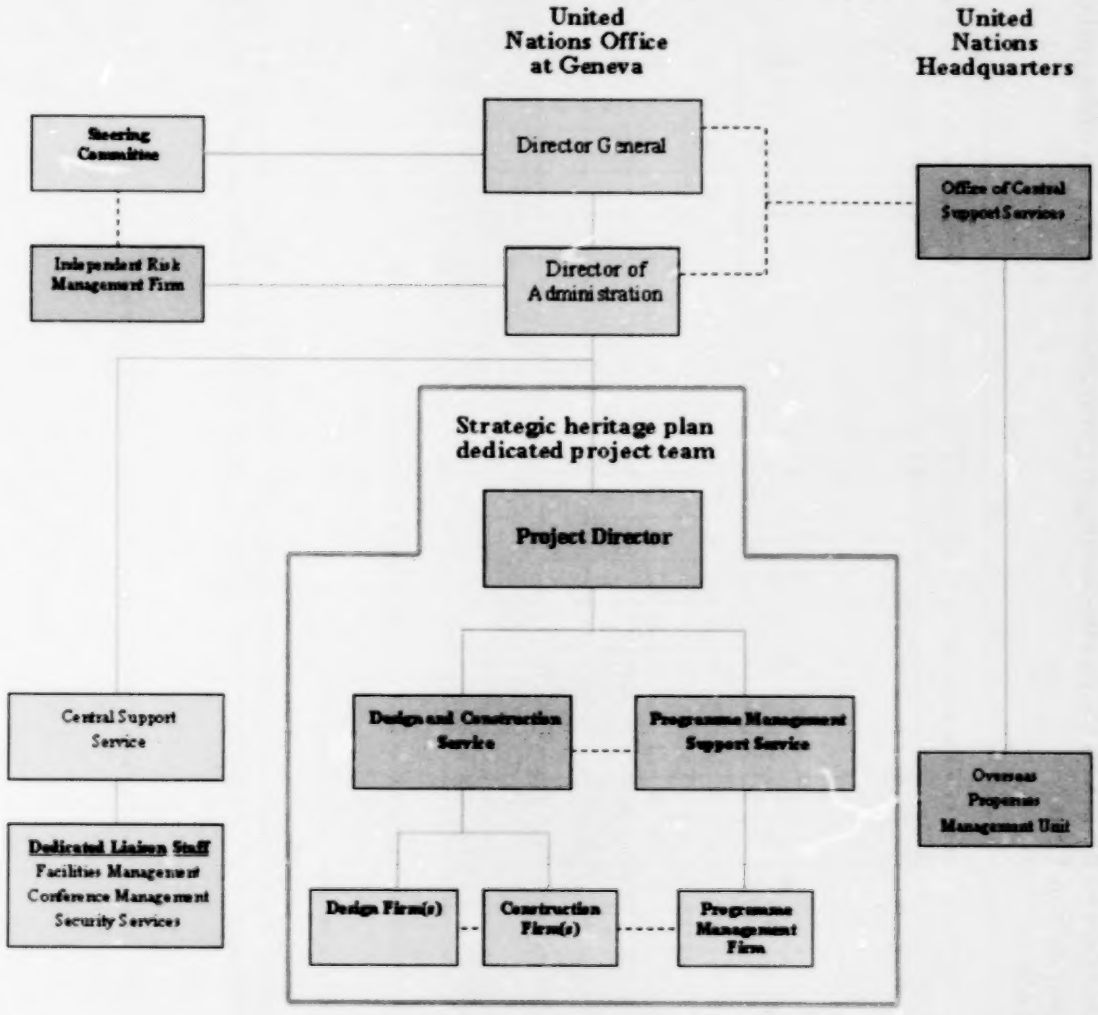
Suggested governance structure



Source: United Nations 2012 Draft Guidelines for Management of Overseas Construction Projects.

Annex IV

Strategic heritage plan governance structure



Source: "Strategic heritage plan of the United Nations Office at Geneva", A/68/372, Annex III, 2013.

Annex V

Overview of actions to be taken by participating organizations on the recommendations of the Joint Inspection Unit
JIU/REP/2014/3

		Intended impact	United Nations, its funds and programmes															Specialized agencies and IAEA												
			CEB	United Nations*	UNCTAD	ITC	UNDP	UNEP	UNFPA	UN-Habitat	UNHCR	UNICEF	UNODC	UNOPS	UNRWA	UN Women	WFP	FAO	IAEA	ICAO	ILO	IMO	ITU	UNAIDS	UNESCO	UNIDO	UNWTO	UPU	WHO	WIPO	WMO
Report	For action		☐	☒	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒	☒	☐	☒	☐	☒	☐	☒	☐	☒	☒	☒	☒	☐	☒	☒	☒	☒
	For information		☒	☐	☒	☒	☐	☒	☒	☒	☐	☒	☒	☐	☐	☒	☐	☒	☐	☒	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐
Recommendation 1		e		E			E				E			E	E		E		E		E		E	E	E	E		E	E	E	E
Recommendation 2		e		L			L				L			L	L		L		L		L		L	L	L	L		L	L	L	L
Recommendation 3		e, b		E																											
Recommendation 4		b, d		E			E				E			E	E		E		E		E		E	E	E	E		E	E	E	E

Legend: **L:** Recommendation for decision by legislative organ **E:** Recommendation for action by executive head

■ : Recommendation does not require action by this organization

Intended impact: **a:** enhanced transparency and accountability **b:** dissemination of good/best practices **c:** enhanced coordination and cooperation **d:** strengthened coherence and harmonization **e:** enhanced control and compliance **f:** enhanced effectiveness **g:** significant financial savings **h:** enhanced efficiency **i:** other.

* Covers all entities listed in ST/SGB/2002/11 other than UNCTAD, UNODC, UNEP, UN-Habitat, UNHCR, UNRWA.

United Nations A/70/368/Add.1

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Item 140 of the provisional agenda*
Joint Inspection Unit

Capital/refurbishment/construction projects across the United Nations system organizations

Note by the Secretary-General

Addendum

The Secretary-General has the honour to transmit to the members of the General Assembly his comments and those of the United Nations System Chief Executives Board for Coordination on the report of the Joint Inspection Unit entitled "Capital/refurbishment/construction projects across the United Nations system organizations" (see A/70/368).

* A/70/150.

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Summary

In its report entitled "Capital/refurbishment/construction projects across the United Nations system organizations" (see A/70/368), the Joint Inspection Unit examines the practices, procedures and modalities used by organizations of the United Nations system for the refurbishment and construction of administrative buildings.

The present note reflects the views of the Secretary-General and organizations of the United Nations system on the recommendations provided in the report. The views have been consolidated on the basis of input provided by member organizations of the United Nations System Chief Executives Board for Coordination, which welcomed the report and supported some of its conclusions.

I. Introduction

1. In its report entitled "Capital/refurbishment/construction projects across the United Nations system organizations" (see A/70/368), the Joint Inspection Unit examines the practices, procedures and modalities used by organizations of the United Nations system for the refurbishment and construction of administrative buildings.

II. General comments

2. Organizations of the United Nations system welcome the report. They appreciate its comprehensive nature and welcome the best practices that it presents for capital, refurbishment and construction projects. Whereas organizations generally find the recommendations useful, their comments, set out below, are intended to clarify various points.

3. Organizations note that, when describing the common practice of adhering to local construction codes (see ibid., para. 54), it would be more appropriate to state that, in the light of both the privileges and immunities of the United Nations system organizations and of those organizations' desire to ensure the observation of appropriate safety standards, the common practice of such organizations is to take into account the local building codes and the advice of the Department of Safety and Security with regard to safety and security, environmental standards, fire protection and energy conservation.

4. Organizations express support for the concept of having staff members from support departments such as procurement, legal affairs, safety and security and facilities management integrated with capital construction project offices (see ibid., para. 74). The Secretariat in particular has found that having specialists from those areas embedded within the Office of the Capital Master Plan facilitates discussion, enhances cross-departmental cooperation and expedites decision-making among the various offices that play vital roles in project management.

5. With regard to the section entitled "Legal guidance, monitoring and support", organizations wish to clarify in particular that the Office of Legal Affairs does not advise the Department of Management "what to do contractually from a practical point of view" (see ibid., para. 105), but instead provides advice on the form and content of contracts to fit the particular scope of work and to protect the legal interests of the Organization. Furthermore, it is incorrect to state that the Procurement Division adjusts the drafts of contracts "to get the consent of [the Office]" (see Ibid., para. 106), but that more accurately the Division seeks the Office's legal advice on the legal aspects of a contract.

6. Regarding the observation that the Office of Legal Affairs has not provided "guidance documents explaining which type of contract was recommended and which standards should apply" (see ibid., para. 106), the Secretariat notes that the Office provides a wide spectrum of advice, services and assistance on legal matters affecting the operation and activities of the Organization, including those involving construction operations. The Office of Central Support Services routinely consults the Office of Legal Affairs regarding how best to structure construction-related contracts and how to resolve issues arising from construction project planning and management. The Office of Legal Affairs encourages all offices under its authority

to consult it for legal guidance on major construction projects, especially during the pre-planning stages of such projects, and in general as early as possible and before any contract documents are sent out as part of request for proposal processes, given that such consultations normally improve project risk management and lead to the creation of a comprehensive and cohesive set of design and construction contract documents that best protect the interests of the Organization. Accordingly, the Office of Legal Affairs provides legal advice and guidance on a case-by-case basis, taking into account the specific details of each capital, construction or refurbishment project and paying careful attention to the particular requirements of a given project and the unique status and requirements of the Organization, in order to address the essential requirements for each project.

7. Organizations wish to clarify that the fact that a contract is not adjusted to local standards in and of itself does not lead to the conclusion that the contract included inconsistencies and contradictions or that the contract is difficult to manage (see ibid., para. 107). They note that local standards that are prevalent in any given geographical area may not be optimal for protecting the interests and limiting the liability of the Organization. Furthermore, local standards often do not address all the specific requirements that are essential to the Organization and its contractors. Therefore, when developing and negotiating a contract between the Organization and a contractor, including construction service providers, caution should be exercised when incorporating local terms and conditions into contracts to ensure that such terms and conditions reflect the requirements that are essential for and particular to the Organization.

8. Organizations express their appreciation for the recognition given to the use of local legal expertise (see ibid., para. 108), with organizations noting that it is important to have local legal expertise available with respect to construction projects given the complexity of construction and the significant role played by local building codes and the practices of local tradespeople in project management. For example, whereas the Office of Legal Affairs has provided significant legal advice to the United Nations Office at Geneva with respect to the pre-planning and contract negotiations relating to its strategic heritage plan, the Office of Legal Affairs has advised the United Nations Office at Geneva to arrange for local Swiss lawyers to be made available to the project management team for consultation. Regarding the capital master plan, the Secretariat retained the services of an outside law firm with which the Office of Legal Affairs was able to consult, especially regarding complex legal issues that involved the peculiarities of New York real estate law and the customs of local construction practices in the city. In the case of the capital master plan, the outside law firm has assisted the Office of Legal Affairs with some aspects of contract negotiations and some construction claims.

9. Organizations also express their appreciation for the recognition given to the value of the "design-build" contractual arrangement (see ibid., para. 112), although they suggest that the report could have been more comprehensive by including the disadvantages to that approach.

10. Organizations agree with the suggestion that contracts include "adequate provisions with regard to variations and adjustments, risk and responsibility, force majeure, delay damages, claims, disputes and arbitration" (see ibid., para. 113) and note that, for complex construction contracts, it would be appropriate for a project management team to consult the relevant legal office to determine the best form of

contract for a particular project. Whereas the report provides some information on the issue, it could have been strengthened with descriptions of the contract types and an indication of all the major alternatives. Furthermore, organizations disagree with the suggestion made in the report on the inclusion of "practice notes and flow charts for project processes as annexes to the contract", and instead suggest that notes and charts not be made part of the contract and thereby given legal significance. Organizations suggest that they be separately issued as contract management documents.

11. Many organizations take note of the assertion regarding the guaranteed maximum price contract (see ibid., para. 114), but advise that it is not necessarily accurate to state that those contracts are "the most beneficial" to the organizations. They note that a guaranteed maximum price contract can be costly if it is amended multiple times with owner-driven change orders.

12. Organizations take note of the suggestions regarding the one-year "defects notification period", but note that that period is as defined in the contract and could be defined as beginning upon "substantial completion" of the work (see ibid., para. 148). They also note that it could expire before "final completion" of the work if the contractor is slow to finish, but that, ideally, it should begin upon final completion. Organizations suggest that project managers, before entering into construction management contracts, consider whether extended manufacturer warranties are to be purchased by the contractor and turned over to the United Nations upon final completion with respect to specific installed equipment. In addition, organizations note that the statement that "final completion is the end of the contractor's obligation or responsibility" (see ibid., para. 151) may not be entirely accurate, and that the contractor should have continuing obligations to return and make repairs free of charge, pursuant to warranty obligations, once the construction reaches final completion.

13. Organizations suggest that environmental, energy-efficient and sustainable aspects be incorporated into capital master plans with the objective of achieving buildings that are green, work-friendly, flexible and accessible to all, including persons with disabilities. Refurbishment projects should be undertaken with the aim of improving the performance of the buildings and the quality of the work environment by creating healthy, cost-effective, safe and attractive office spaces.

III. Specific comments on recommendations

Recommendation 1

The executive heads of the United Nations system organizations should establish close monitoring and periodic reporting mechanisms for capital/refurbishment/construction projects throughout all project phases.

14. Organizations support recommendation 1.

Recommendation 2

Taking into account the high cost and high risk of capital/refurbishment/construction projects, the legislative/governing bodies of the United Nations system organizations should exercise their monitoring and oversight role with regard to their respective projects on an ongoing basis, including during the

pre-planning, planning, executing and completing phases, ensuring cost efficiency and the achievement of the overall goals of the projects.

15. Noting that recommendation 2 is directed at legislative and governing bodies, organizations support the call for those bodies to exercise their monitoring and oversight role with regard to their respective projects on an ongoing basis.

Recommendation 3

The Secretary-General, in his capacity as the Chair of the United Nations System Chief Executives Board for Coordination, should request the Chair of the High-level Committee on Management to establish a working group on facilities management that emphasizes issues related to capital/refurbishment/ construction projects.

16. Organizations responded to recommendation 3, by noting that the structure of the High-level Committee on Management already includes networks that deal with the financial, procurement, information and communications technology and human resources implications of all United Nations system operations, including initiatives relating to facilities. That structure ensures swift and targeted action and light transaction costs, and any specific issues relating to facilities can be brought to the attention of the Committee by the representative of the relevant member organization without the need to establish a new structure.

17. In addition, organizations point out that there is an ongoing existing initiative, the Inter-Agency Network of Facilities Managers, which discusses best practices, common approaches and experiences pertinent to facilities management. The Network, in addition to members of the United Nations system, also includes members from outside the United Nations system whose contributions have been useful and valuable. The functions and outputs of a new working group would overlap with the existing ones of the Network and reporting from such a working group to the High-level Committee on Management would be substantially more demanding, and require additional resources, than coordinating and managing the existing Network. In addition, the framework of such a working group would be narrower than that of the Network, given that its membership would be limited to United Nations members, which are already participating in the Network.

Recommendation 4

The executive heads of the United Nations system organizations should ensure that the 19 best practices presented in the present review are followed when undertaking capital/refurbishment/construction projects.

18. Organizations accept recommendation 4 and welcome the list of best practices presented, which they note provides a useful guide during the pre-planning, planning, executing and completing phases of capital, refurbishment, and construction projects. Organizations in particular cite No. 16, regarding dedicated committees, and support the suggestion to establish review bodies on a project basis, keeping in mind that projects of that nature may require special procedures, such as specific procurement policies and authority delegated at a higher level.